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MASTER DRAWING LIST

DWG. NO.	REV.	NO. OF LET.	NO. OF SHEETS	TITLE
A-PL-DB11-A-0	D	1		DB11-A UA PL
D-AD-7009612-0-0	C	2		WIRED ASSY
A-WT-7009612-0	#	1		AWT REVISION STATUS
D-MU-DB11-A-01	C	1		MODULE UTILIZATION
A-PL-DB11-A-01	C	1		MODULE UTILIZATION PL
D-BS-DB11-A-02	A	1		BUS REPEATER DB11 UNIDIR LINES
D-BS-DB11-A-03	A	1		BUS REPEATER DATA LINES
D-IC-DB11-A-04	B	1		BUS AND POWER CONNECTIONS
D-BD-DB11-A-0	C	1		DB11 INTER CONNECTION DIAGRAM
K-WL-DB11-A-06	H	1		WIRE LIST (DB11-A) (COMPLETE)
A-SP-DB11-A-7	C	4		BUS REPEATER SPECIFICATION
A-AL-DB11-A-10		1		ACCESSORY LIST
E-IA-7009562-0-0	#	1		G772 SYS UNIT HARNESS
A-SP-DB11-A-8	REF	2		TEST PROCEDURE
A-SP-DB11-A-9	REF	2		IN HOUSE ACCEPTANCE TEST

REVISIONS				DRN.	DATE
A	5/71	DB11A-1	V.B.	DBISSONNETTE	2/23/71
B	6/71	DB11A-2	V. B.	MACKENZIE	3/3/71
C	9/71	DB11A-3	A.V.	ENG	3/16/71
D	1/72	DB11A-4	V. B.	PROJ. ENG	3/16/71
E	6/72	DB11A-5	V. B.	PROD.	3/16/71
F	7-73	DB11A-6	Z.R.	PROD.	3/25/71
H	10-73	DB11A-7	V. B.	FIRST USED ON	
J	10-73	DB11A-8	T. R.	PDP II	
K	12-73	DB11A-9	T. R.	SIZE	
L	1-74	DB11A-10	V. B.	CODE	
M	1-74	DB11A-11	T. R.	NUMBER	
N	10-74	DB11A-12	V. P.	SCALE	

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
DB11-A
BUS REPEATER

P.D.P. II

A	ML	DB11-A	R
SHEET	1 OF 2	DIST.	

DEC FORM NO.16-1033
DR 4103

ADDITIONAL CUSTOMER PRINTS DB11-A

Drawing Number	Rev. Let.	Title
D-CS-M7212-0-1	#	A LINE REPEATER
D-CS-M7213-0-1	#	MASTER REPEATER
B-CS-M783-0-1	#	UNIBUS DRIVERS
B-CS-M784-0-1	#	UNIBUS RECEIVERS
B-CS-M785-0-1	#	UNIBUS TRANCEIVERS
C-CS-M930-0-1	#	BUS TERMINATOR
D-CS-M7248-0-1	#	UNIBUS REPEATER CARD

BB11-A
UNIBUS Repeater

REV.	DATE	Change Number
	1-1-74	DB11A-00003
	2-2-74	DB11A-00004
Requested by _____ Date _____		
<i>Q.S. Shanks</i>		
Authorized by _____		
A-AL-DB11-A SHEET 2		
REV. R		

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

NAME	H. J. BISSONNETTE
DATE	1/12/71
EXPIRY	1/12/71
DATE	1/12/71

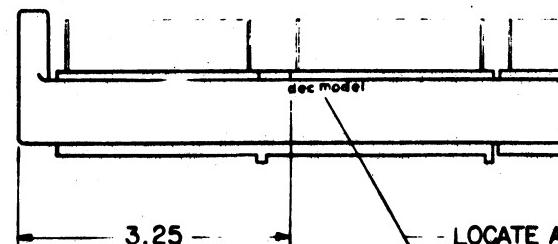
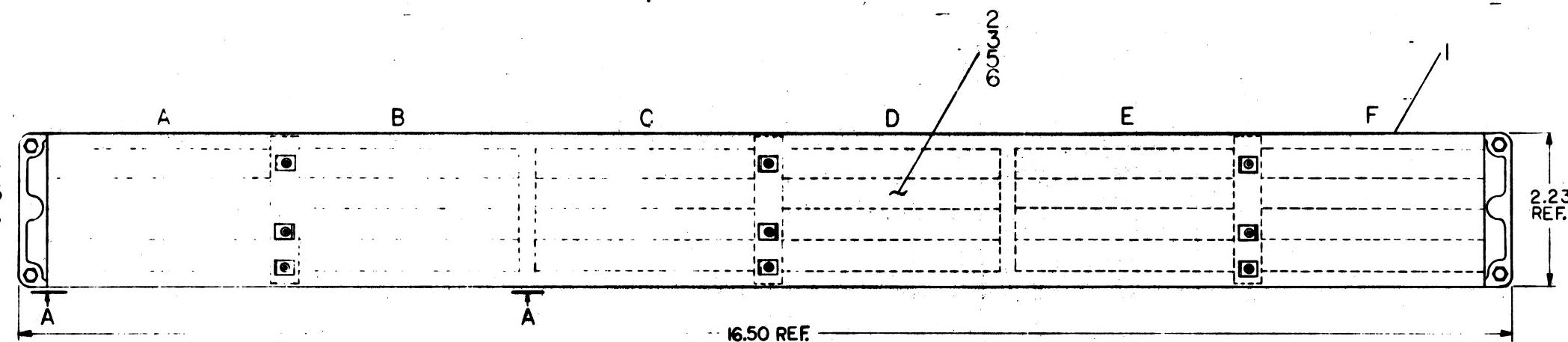
CHECKED M. MACKENZIE
DATE 3/3/71
PROD *Antrach*
DATE 3-25-71

SECTION
ISSUED SEC

* NOTE: For 11/45-11/50 CPU's with serial no's less than 2000 use harness 7008855. For 11/35-11/40 CPU's with S/N less than 6000 or H960-D, E with S/N less than 7000 use harness 7008909.

TITLE DB11-A BUS REPEATER	ASSY NO. A-ML-DB11-A	SIZE A	CODE PL	NUMBER DB11-A-0	REV. D ECO NO. DBIIA- 000013
SHEET 1 OF 1	DIST.				

NOTES:
1. ALL VERTICAL HAND WIRING TO RUN
OUTSIDE OF CONNECTOR BLOCK



VIEW A-A

LOCATE AS CLOSE TO TOP AS POSSIBLE

REV	NAME	REV	NAME
-	ORIGINAL	-	REVISED
DBII-A0009	DBII-A	12-17-74	
T. REILLY	J. TULLY		
C. DBIA-CO004	C. DBIA-CO004		
1.25	2.25		
V. BASTIANI	V. BASTIANI		
D. DATT	D. DATT		

REF	AWT	REVISION	STATUS	A-WT-A0009
I	WIRE LIST		KWL-HIA06	REF
A/R	WIRE 30AWG TWP BLK/WHT		9IC7720-0-9	6
A/R	WIRE 24 AWG SOLID KYNARIN. BLK		910/688-0-0	5
A/R	LOGIC FRAME DECALS		A-D 1406-170-1	4
A/R	WIRE 24 AWG SOLID KYNARIN. RED		9IC76R8-22	3
A/R	WIRE 30AWG SOLID KYNARIN. YEL		91-5740-44	2
I	BACK PLANE ASSY		7009152	1

REF	AWT	REVISION	STATUS	A-WT-A0009
DBII-A				
FIRST USED ON OPTION/MODEL				
UNLESS OTHERWISE SPECIFIED	DNN	DATE	6-3-73	
DIMENSION IN INCHES				
TOLERANCES	CHKD	DATE	6-3-73	
DECIMALS	ENG.	DATE		
X	ENG.	DATE		
.	PROJ. ENGR.	DATE		
X	PROD.	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓				
MATERIAL	NEXT HIGHER ASY.			
FINISH	SCALE	SIZE CODE	NUMBER	REV
		D	7009612-0-0	C
		SHEET	1 OF 2	DIST

EQUIPMENT
CORPORATION
NATICK MASSACHUSETTS
WIRED ASS'Y
(DBII-A)

WIRE TABLE					
ITEM NO.	SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS
3	+5V	A03 A2 A03 J2	C01 A2 E01 A2	RED	WIRES MUST PHYSICALLY RUN TO THE LEFT OF THE BLOCK AND PINS.
		A03 K2	B03 A2		
		A03 L2 A03 M2	D04 A2 F04 A2	RED	WIRES MUST PHYSICALLY RUN TO THE RIGHT OF THE BLOCK AND PINS.
5	GROUND	A03 D2 A03 C2 A03 E2 A03 N1 A03 R1 A03 P1 A03 U1 A03 S1 A03 F2 A03 C2 A03 VI A03 TI F02 T1	A03 E2 A03 DE A03 F2 A03 PI A03 SI A03 RI A03 VI A03 UI A03 NI F01 TI C01 C2 E01 C2 CHASSIS	BLACK	
6	RIGHT B64 GROUND	B04 E2 B03 C2 D04 E2 D02 C2	D04 E2 D02 C2 F02 F2 F02 C2	WHT, BLK, TWP	
6	RIGHT B65 GROUND	B04 B1 B03 C2 D04 B1 D01 C2	D04 B1 D01 C2 F02 T2 F02 T1	WHT, BLK, TWP	
6	RIGHT B66 GROUND	B04 A1 B02 C2 D04 A1 C04 T1	D04 A1 C04 T1 F02 R2 F02 T1	WHT, BLK, TWP	
6	RIGHT B67 GROUND	A04 V1 A04 T1 C04 V1 C02 T1	C04 V1 C02 T1 F02 R1 F02 C2	WHT, BLK, TWP	

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO	ITEM NO
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. R. VOWLES	DATE 8-3-73	EQUIPMENT CORPORATION digital CAMBRIDGE MASSACHUSETTS	
DECIMALS	ANGLES	ENG. <i>[Signature]</i>	DATE 10-1-73	TITLE WIRED ASSY DBII-A	
.000 - .000 .000 - .000 N - 1	10° 30'	PROJ. ENG. <i>[Signature]</i>	DATE 10-1-73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		PROD. <i>[Signature]</i>	DATE 10-1-73		
MATERIAL		NEXT HIGHER ASSY.			
FINISH		SCALE 1 : 1	SIZE CODE D AD	NUMBER 7009612-0-0	REV C
		SHEET 2 OF 2	DIST		

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AUTOMATIC WIRE TESTER (AWT) REVISION STATUS

DRA 123

DEC 16-13251-1097-N17

H VISIONS	
LIN	CHANNEL NO.
1	HV-A-C-C-1
2	
BASTIANI	
3	DBII-A-00003
4	M. G. 9-13-71
5	BASTIANI
6	11-5-71
7	DBII-A-00012
8	C
9	DBII-A-00004
10	A
11	BASTIANI

8

7

6

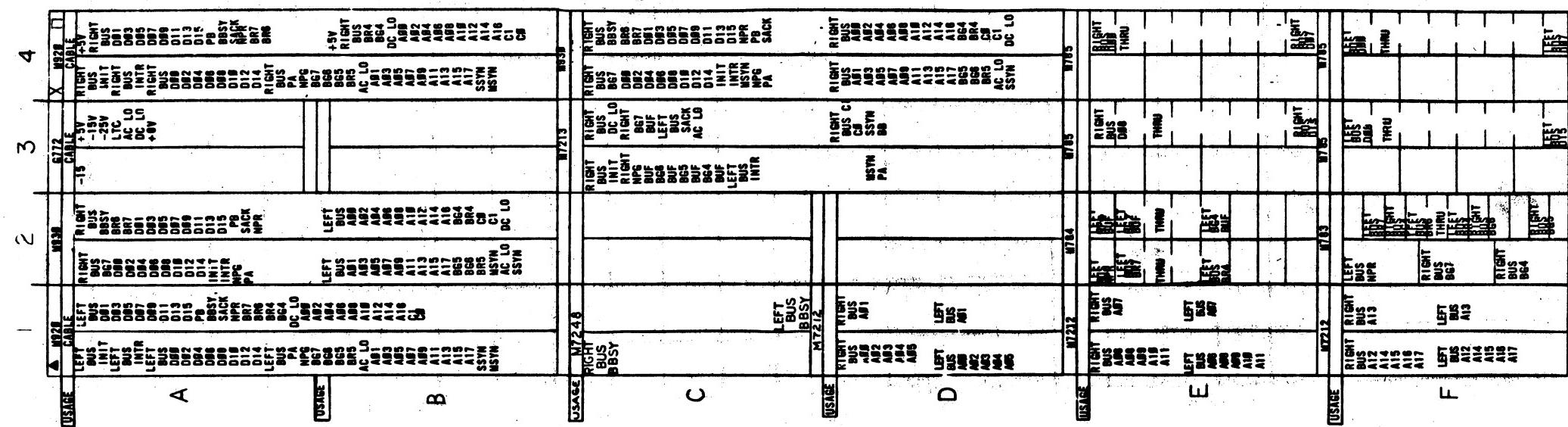
5

4

3

2

1



- IF END OF BUS REPLACE M229 WITH M211A
- IF LAST UNIT IN BASIC BOX REPLACE M229 WITH M211A
- IF FIRST UNIT IN EXPANDER BOX REPLACE M229 WITH M211A

8

7

6

5

4

3

2

1

FIRST USED ON OPTION/MODEL	QTY.	PARTS LIST		ITEM NO.
		DESCRIPTION	PART NO.	
DBII				
UNLESS OTHERWISE SPECIFIED		DRN. V. BISSONNETTE	DATE 4-22-71	
UNLESS OTHERWISE SPECIFIED		PROJ. NO. 100-10000	DATE 4-22-71	
DIMENSIONS IN INCHES		ENG. L. Bastian	DATE 5/6/71	
TOLERANCES		PROL. ENG. L. Bastian	DATE 5/6/71	
DECIMAL FRACTIONS		PROD. M. Biss	DATE 5/6/71	
± .005 ± 1/64 ± 0°		MATERIAL ALUMINUM	DATE 5/6/71	
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		FINISH	SIZE CODE DMU NUMBER DBII-A-01	REV C
NEXT HIGHER ASSY A-ML-DBII-A-0				
SCALE 1 OF 1 SHEET DIST.				

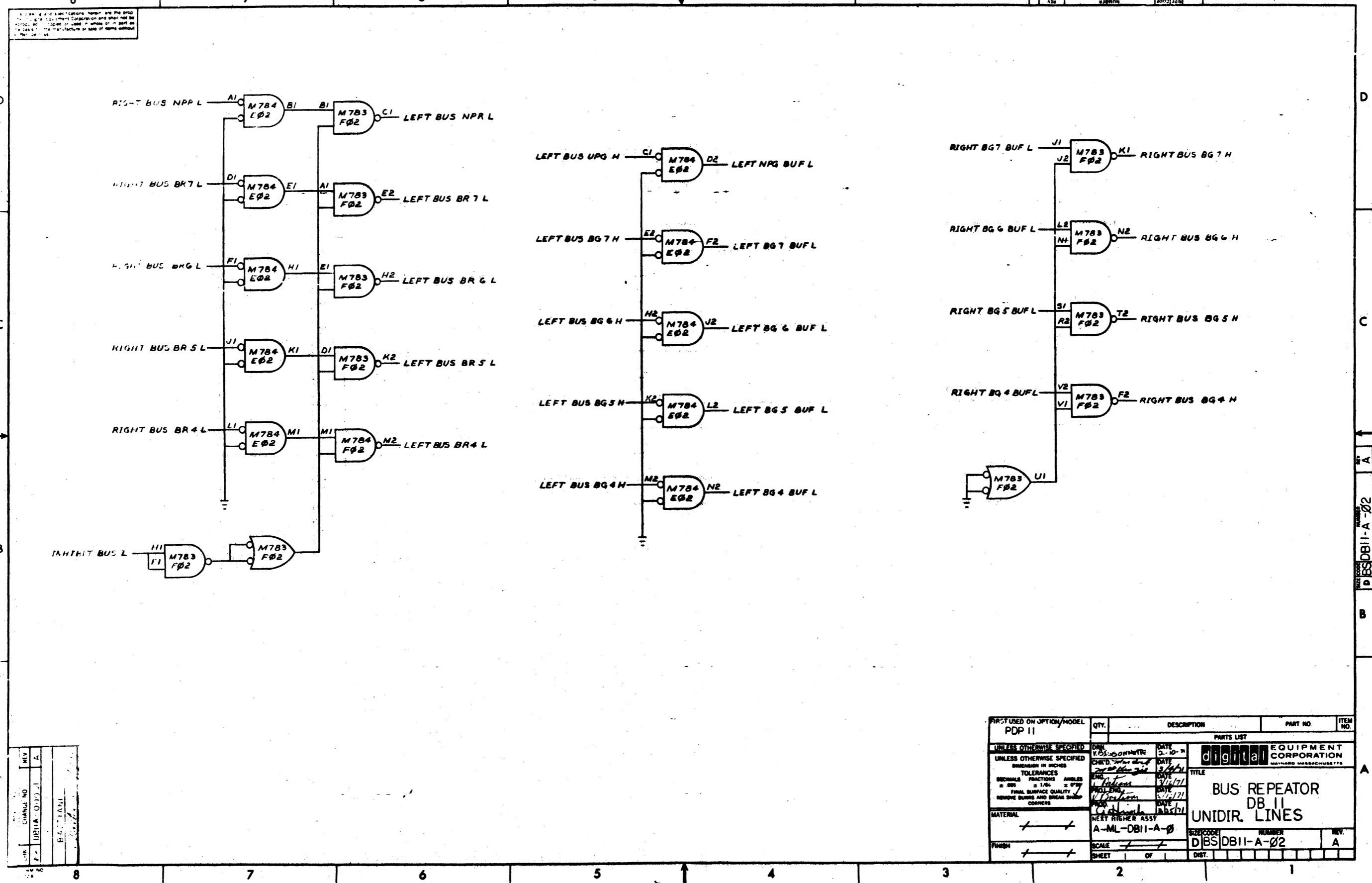
MODULE UTILIZATION

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

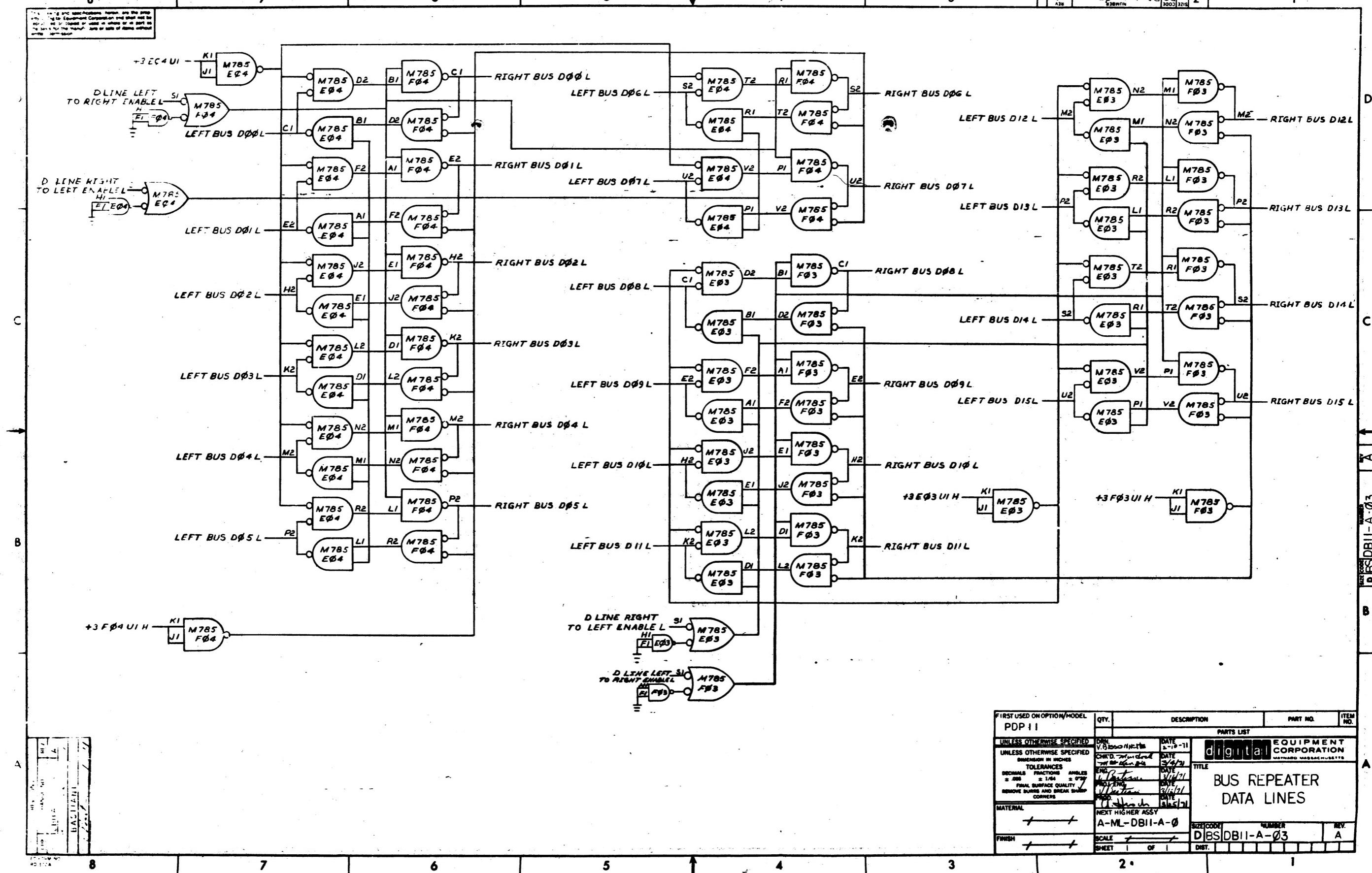
MADE BY V. BISSONNETTE	CHECKED M. MACKENZIE	SECTION
DATE 2/4/71	DATE 3/3/71	1
ENG 100%	PROD Astorica	ISSUED SEC
DATE 11/1/71	DATE 3-25-71	1

TITLE MODULE UTILIZATION (PL)	ASSY NO. D-MU-DB11-A-01	SIZE A	CODE PL	NUMBER DB11-A-01	REV. C ECO NO. DBIIA-C CC012
SHEET 1 OF 1	DIST.				

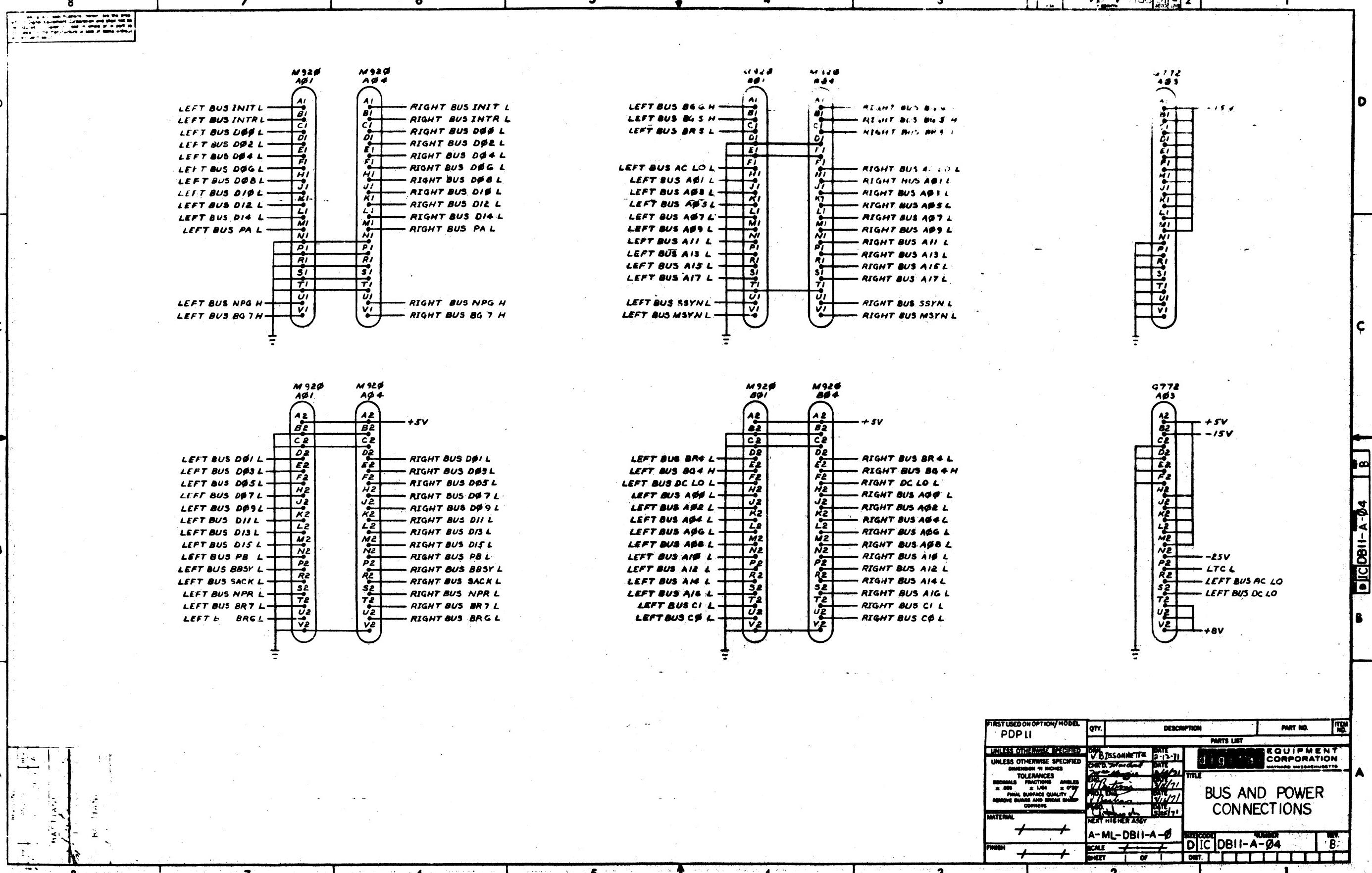
DEC FORM NO
DRA 110

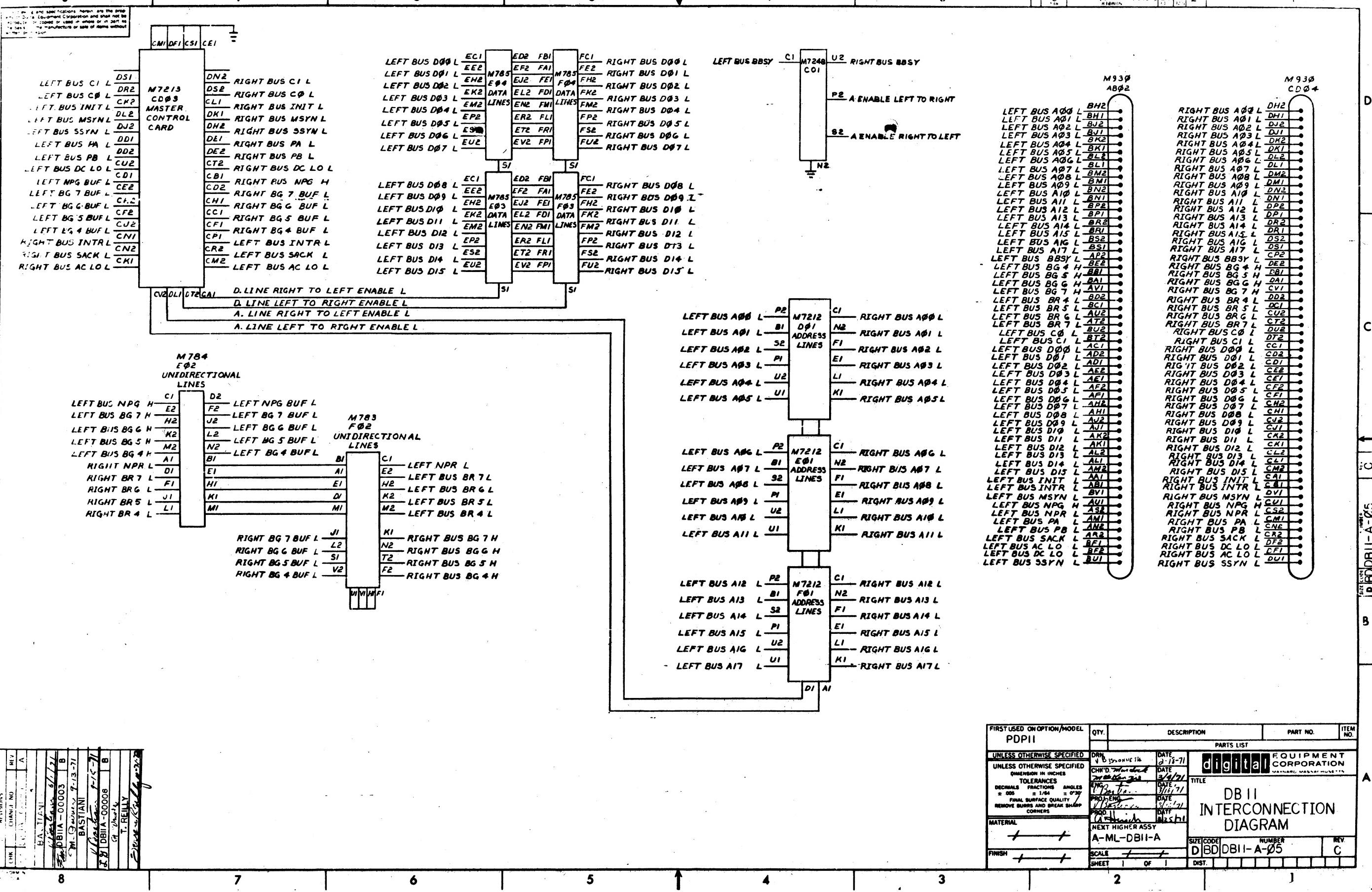


FIRST USED ON OPTION/MODEL PDP 11		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED				PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRAW.	DATE 3-10-74	EQUIPMENT CORPORATION NATICK, MASSACHUSETTS	
TOLERANCES		CHRD.	DATE 3/10/74	TITLE	
DECIMAL FRACTIONS AMBLES ± .005 1.00 = 0.75		ENG.	DATE 3/10/74	BUS REPEATOR	
FINAL SURFACE QUALITY		HOLDING	DATE 3/10/74	DB 11	
REMOVE BURRS AND BREAK SHARP CORNERS		PRO.	DATE 3/10/74	UNIDIR. LINES	
MATERIAL		NEXT HIGHER ASSY A-ML-DBII-A-0			
FINISH		SCALE	SIZE CODE D	NUMBER DBII-A-02	REV. A
		SHEET	OF	DIST.	



FIRST USED ON OPTION/MODEL PDP 11	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		
UNLESS OTHERWISE SPECIFIED	DRA. V.0100001-N-101	DATE 5-10-11	EQUIPMENT CORPORATION WATERTOWN MASSACHUSETTS	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	CHRD. MATERIAL	DATE 5-14-11	TITLE	
TOLERANCES	ENG. MATERIAL	DATE 5-14-11	BUS REPEATER	
DECIMALS PREFERRED ANGLES ± .005 ± 1/64 ± 0°30'	ROD ENG. MATERIAL	DATE 5-14-11	DATA LINES	
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	PROF. MATERIAL	DATE 5-15-11		
MATERIAL	NEXT HIGHER ASSY			
+	A-ML-DBII-A-0			
FINISH	SCALE SHEET	NUMBER DBII-A-03	REV. A	DATE.
+	1 OF 1			





K-WL-DBII-A-06

H

REVISIONS			
REV LTR	ECO NO	DATE	ENG
A	DBIIA-00001	6-1-71	VB
B	DBIIA-00003	9-10-71	VB
C	DBIIA-00004	1-26-72	VB
D	DBIIA-00005	6-14-72	iB
E	DBIIA-00006	8-3-73	nR
F	DBIIA-00007	10-7-73	Rev
H	DBIIA-00009	12-17-73	

DRAWN <i>Murdoch</i>	DATE 3/3/71
CHECKED <i>A. Noyes</i>	DATE 3/4/71
ENG <i>V. Battista</i>	DATE 3/16/71
PROJ. ENG <i>V. Battista</i>	DATE 3/16/71
PRUD. <i>G. Heisch</i>	DATE 3/24/71

digital
EQUIPMENT
CORPORATION
MAYNARD, MASSACHUSETTS

ASSY NO
D-AD-7008311-0-0

SCALE ← → SHEET 1 OF 1

SIZE	CODE	DWG. NO.	REV LTR
KWL		DBII-A-06	H

DB11A.H RUN NAME	HNU784.V22(22) 11/06/73				DRAW NO.	X	Z	REMARKS	14-UFC-73	9:49	PAGE 1
	A/P	PT#	UNPUPK NAME	RAY - UNPUPK PIN					LENGTH	EXCEPTIONS	RUN NUMBER
+3V		F02v1	1-01 *	2					1		
+3V		F02u1	1-02 *			1			1		
+3V		F02h2	1-03 *			2			1		
+3V		F02n1	1-04 *			1			1		
+3V		F02j2	1-05 *			2			1		
+3V		F02h1	1-06 *			1			1		
+3V		F02f1	1-07 *			1			1		
+3V			1					16-4/8	1		
A FN LEFT TO RTGHT		C01p2	1-01 *			2			2		
A FN LEFT TO RTGHT		C03v2	1-02 *			1			2		
A FN LEFT TO RTGHT		D01a1	E01a1	1-03 *		2			2		
A FN LEFT TO RTGHT		F01a1	1-04 *			1			2		
A FN LEFT TO RTGHT		F01a1	1-05 *			1			2		
A FN LEFT TO RTGHT			1					17-7/8	2		
A FN RIGHT TO LEFT		D01d1	C01s2	1-01 *	2				1-7	3	
A FN RIGHT TO LEFT		C01s2	1-02 *			1			3		
A FN RIGHT TO LEFT		D03l1	F01d1	1-03 *		2			3		
A FN RIGHT TO LEFT		F01d1	1-04 *			1			3		
A FN RIGHT TO LEFT		F01d1	1-05 *			1			3		
A FN RIGHT TO LEFT			1					19-2/8	3		
AA2		A02a2	A01a2	1-01 *		2			4		
AA2		A01a2	1-02 *			1			4		
AA2		B01a2	1-03 *			2			4		
AA2		B02a2	1-04 *			1			4		
AA2			1					11-3/8	4		
AB2		A01b2	1-01 *			1			5		
AB2		A02b2	1-02 *			2			5		
AB2		A04b2	1-03 *			1			5		
AB2		C04b2	1-04 *			1			5		
AB2			1					13-4/8	5		
AN1		A01n1	1-01 *			1			6		
AN1		A02n1	A04n1	1-02 *		2			6		
AN1		A04n1	1-03 *			1			6		
AN1		C04n1	1-04 *			1			6		
AN1			1					14-1/8	6		
AP1		A01p1	1-01 *			1			7		
AP1		A02p1	A04p1	1-02 *		2			7		
AP1		A04p1	1-03 *			1			7		
AP1		C04p1	1-04 *			1			7		
AP1			1					14-3/8	7		

DB11A.H RUN NAME	HND249.V22(22) 11/06/73							19-DEC-73	9:49	PAGE 2				
	A/P	PTN NAME	UP1-EH PIN	BAY - UPDFH	U	DNAE	HV	PG	Y	Z	REMARKS	LENGTH	EXPLANATION	RUN
AR1		A01R1		1-01 *						1				8
AR1		A02R1	A04R1	1-02 *						2				8
AR1		A04R1		1-03 *						1				8
AR1		C04R1		1-04 *										8
AR1				1									14-1/2	8
AS1		A01S1		1-01 *						1				9
AS1		A02S1	A04S1	1-02 *						2				9
AS1		A04S1		1-03 *						1				9
AS1		C04S1		1-04 *										9
AS1				1									14-3/2	9
AV2		AU1V2		1-01 *						1				10
AV2		AU2V2		1-02 *						2				10
AV2		AU4V2		1-03 *						1				10
AV2		CU4V2		1-04 *										10
AV2				1									13-4/2	10
R TNTT		CO3J1											1-FIN RUN	11
BB2		BU1B2		1-01 *						1				12
BB2		BU2B2		1-02 *						2				12
BB2		BU4B2		1-03 *						1				12
BB2		DU4B2		1-04 *										12
BB2				1									13-4/2	12
RD1		RU1D1		1-01 *						1				13
RD1		RU2D1	RU4D1	1-02 *						2				13
RD1		RU4D1		1-03 *						1				13
RD1		DU4D1		1-04 *										13
RD1				1									14-1/2	13
RE1		RU1E1		1-01 *						1				14
RE1		RU2E1	RU4E1	1-02 *						2				14
RE1		RU4E1		1-03 *						1				14
RE1		DU4E1		1-04 *										14
RE1				1									14-3/2	14
RV2		AU1C2		1-01 *						2				15
RV2		AU1T1		1-02 *						1				15
BV2		BU1C2		1-03 *						2				15
BV2		BU1T1		1-04 *						1				15
BV2		BU1V2		1-05 *						2				15
BV2		BU2V2		1-06 *						1				15
BV2		BU4V2		1-07 *						2				15
BV2		DU4V2		1-08 *										15
BV2				1									27-6/2	15

HND288,V22(22) 11/06/73		A/P		PIN	ORDER	BAY	Q	DRAW	RV	PG	Y	X	Z	REMARKS	19-UFC-73	9:49	LENTH	FACTR PCTNS	RUN	PAGE	
				NAME	PIN	ORDER															
CA2		A04A2			1-01	*	1									2-3				12	
CA2		B04A2	C04A2		1-02	*									2					12	
CA2		C04A2			1-03	*									1					12	
CA2		D04A2			1-04	*														12	
CA2					1												15-4/8			12	
D LEFT TO RIGHT EN		D03I2			1-01	*									1			3-7			12
D LEFT TO RIGHT EN		F04S1			1-02	*									2					12	
D LEFT TO RIGHT FN		F03S1			1-03	*									1					12	
D LEFT TO RIGHT EN					1												11-1/8			12	
D RIGHT TO LEFT EN		C03A1			1-01	*									1					12	
D RIGHT TO LEFT EN		F03S1			1-02	*									2					12	
D RIGHT TO LEFT FN		F04S1			1-03	*														12	
D RIGHT TO LEFT EN					1												12-0/8			12	
E2B1		F02B1			1-01	*									1			2-7			12
E2B1		F02M1			1-02	*														12	
E2B1					1												6-3/8			12	
E2E1		F02E1			1-01	*									1			2-5			20
F2E1		F02A1			1-02	*														20	
F2F1					1												5-7/8			20	
E2H1		F02H1			1-01	*									1			2-5			21
E2H1		F02E1			1-02	*														21	
E2H1					1												5-7/8			21	
E2K1		F02K1			1-01	*									1			2-4			22
E2K1		F02D1			1-02	*														22	
F2K1					1												5-5/8			22	
E2M1		F02M1			1-01	*									1			2-5			23
E2M1		F02M1			1-02	*														23	
F2M1					1												5-7/8			23	
F3		F03J1			1-01	*									1					24	
F3		F03K1			1-02	*									2					24	
F3		F03U1	N03B1		1-03	*									1					24	
F3		D03B1			1-04	*														24	
F3					1												12-4/8			24	
E3A1		F03A1			1-01	*									1			3-2			25
E3A1		F03F2			1-02	*														25	
E3A1					1												7-1/8			25	

DB11A.H HND288.V22(22) 11/06/73 19-UFC-73 9:49 PAGE 4
 RUN NAME A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS LENGTH EXCEPTIONS RUN NUMBER
 NAME PIN ORDER

E3R1	F03H1	1-01 *			1		2-7		26
E3R1	F03L2	1-02 *					6-3/8		26
E3R1		1							2
E3D1	F03D1	1-01 *			1		3-2		27
E3D1	F03L2	1-02 *							27
E3D1		1					7-1/8		27
E3D2	E03D7	1-01 *			1				28
E3D2	F03B1	1-02 *							28
E3D2		1					5-0/8		28
E3E1	F03E1	1-01 *			1		3-1		29
E3E1	F03J2	1-02 *							29
E3F1		1					6-7/8		29
E3F2	F03F2	1-01 *			1				30
E3F2	F03A1	1-02 *							30
E3F2		1					4-6/8		30
E3J2	F03J2	1-01 *			1				31
E3J2	F03E1	1-02 *							31
E3J2		1					5-0/8		31
E3L1	F03L1	1-01 *			1		3-1		32
E3L1	F03R2	1-02 *							32
E3L1		1					6-7/8		32
E3L2	F03L2	1-01 *			1				33
E3L2	F03D1	1-02 *							33
E3L2		1					4-4/8		33
E3M1	F03M1	1-01 *			1		3-0		34
E3M1	F03N2	1-02 *							34
E3M1		1					6-5/8		34
E3N2	F03N2	1-01 *			1				35
E3N2	F03M1	1-02 *							35
E3N2		1					5-2/8		35
E3P1	F03P1	1-01 *			1		3-2		36
E3P1	F03V2	1-02 *							36
E3P1		1					7-1/8		36
E3R1	E03R1	1-01 *			1		2-7		37
E3R1	F03I2	1-02 *							37
E3R1		1					6-3/8		37

DB11A.H HND288.V22(22) 11/06/73 19-DEC-73 9:49 PAGE 5
 RUN NAME A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS LENGTH EXCEPTIONS RUN NUMBER
 NAME PIN ORDER

E3P2	F03R2	1-01 *			1				38
E3R2	F03L1	1-02 *							38
E3P2		1					4-6/8		38
E3T2	F03T2	1-01 *			1				39
E3T2	F03N1	1-02 *							39
E3T2		1					5-0/8		39
E3V2	F03V2	1-01 *			1				40
E3V2	F03P1	1-02 *							40
E3V2		1					4-6/8		40
E4	E04D2	1-01 *			1				41
E4	F04B1	1-02 *							41
E4		1					5-0/8		41
E4P1	F04P1	1-01 *							42
E4P1	F04V2	1-02 *							42
E4P1		1					6-0/8		42
E4P1	F04R1	1-01 *			1				43
E4P1	F04I2	1-02 *							43
E4P1		1					5-4/8		43
E4U1	F04J1	1-01 *			1				44
E4U1	F04K1	1-02 *			2				44
E4U1	E04U1	1-03 *	D03C1	1					44
E4U1	D03C1	1-04 *							44
E4U1		1					12-4/8		44
E4V2	F04V2	1-01 *			1				45
E4V2	F04P1	1-02 *							45
E4V2		1					4-6/8		45
EA	E04A1	1-01 *			1				46
EA	F04E2	1-02 *							46
EA		1					6-0/8		46
FB	F04B1	1-01 *			1				47
FB	F04D2	1-02 *							47
FB		1					5-4/8		47
FD	E04D1	1-01 *			1				48
FD	F04I2	1-02 *							48
FD		1					6-0/8		48

1

DB11A.H RUN NAME	MND26H,V42(22) 11/06/73	A/P NAME	PIN #	UPDER NAME	BAY - PIN	U ORDER	DRAW	RV	PG	Y	X	Z	REMARKS	19-DFC-73	9849	PAGE 6
														LENGTH	EXCEPTIONS	RUN NUMBER
EE		F04E1			1-01	*							1			49
EE		F04J2			1-02	*										49
EE					1									5-6/8		49
EF		F04F2			1-01	*							1			50
EF		F04A1			1-02	*										50
EF					1									4-6/8		50
EJ		F04J2			1-01	*							1			51
EJ		F04E1			1-02	*										51
EJ					1									5-0/8		51
EK		F04L1			1-01	*							1			52
EK		F04R2			1-02	*										52
EK					1									5-6/8		52
FL		F04L2			1-01	*							1			53
EL		F04D1			1-02	*										53
FL					1									4-4/8		53
EM		F04M1			1-01	*							1			54
EM		F04N2			1-02	*										54
EM					1									5-4/8		54
EN		F04N2			1-01	*							1			55
EN		F04M1			1-02	*										55
EN					1									5-2/8		55
ER		F04R2			1-01	*							1			56
ER		F04L1			1-02	*										56
ER					1									4-6/8		56
ET		F04T2			1-01	*							1			57
ET		F04R1			1-02	*										57
ET					1									5-0/H		57
F3		F03J1			1-01	*							1			58
F3		F03K1			1-02	*							2			58
F3		F03U1			1-03	*										58
F3					1									5-6/8		58
F4		F04J1			1-01	*							1			59
F4		F04K1			1-02	*							2			59
F4		F04U1			1-03	*										59
F4					1									5-6/8		59

DB11A.H RUN NAME	HND288.V22(22) 11/06/73							19-DEC-73	9:49	PAGE 7					
	A/P	PIN	ORDER	BAY - NAME	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
GND		E03C2	1-01 *								1				60
GND		E03H1	1-02 *								2				60
GND		F03F1	1-03 *								1				60
GND		F04H1	1-04 *								2				60
GND		F04F1	1-05 *								1				60
GND		F04C2	1-06 *								2				60
GND		F04C2	1-07 *								1				60
GND		F04H1	1-08 *								2				60
GND		F04F1	1-09 *								1				60
GND		F03C2	1-10 *								2				60
GND		F03F1	1-11 *								1				60
GND		F03H1	1-12 *												60
GND			1										32-2/8		60
INHIBIT ACLO		C03E1	1-01 *								1				61
INHIBIT ACLO		C03C2	1-02 *												61
INHIBIT ACLO			1										2-6/8		61
INHIBIT RUS		D03F1	1-01 *								1				62
INHIBIT RUS		D03C2	C01N2	1-02 *							2				62
INHIBIT RUS		C01N2	C01C2	1-03 *							1				62
INHIBIT RUS		C01C2	1-04 *												62
INHIBIT RUS			1										10-4/8		62
INHIBIT DCLO		C03T1	1-01 *								1				63
INHIBIT DCLO		C03S1	1-02 *											2-4/8	63
INHIBIT DCLO			1												63
INHIBIT INIT		C03M1	1-01 *								1				64
INHIBIT INIT		D03T1	1-02 *												64
INHIBIT INIT			1										5-6/8		64
L R D00		A01C1	A02C1	1-01 *							2				65
L R D00		A02C1		1-02 *							1				65
L R D00		E04C1		1-03 *											65
L R D00			1										16-3/8		65
L R D01		A01D2		1-01 *							2				66
L R D01		A02D2		1-02 *							1				66
L R D01		E04E2		1-03 *											66
L R D01			1										16-0/H		66
L R D02		A01D1	A02D1	1-01 *							2				67
L R D02		A02D1		1-02 *							1				67
L R D02		E04H2		1-03 *											67
L R D02			1										16-7/H		67

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RUN NAME	A/P	PIN	ORDER	BAY -	Q	DRAW	RV	PG	Y	X	Z	REMARKS	19-DEC-73	9:49	EXCEPTIONS	PAGE 8
	NAME	PIN	ORDER											LENGTH	RUN NUMBER	
L R D03		A01E2	A02E2	1-01 *											68	
L R D03		A02E2		1-02 *											68	
L R D03		E04K2		1-03 *											68	
L R D03				1										16-7/8	68	
L R D04		A01E1		1-01 *											69	
L R D04		A02E1		1-02 *											69	
L R D04		E04M2		1-03 *											69	
L R D04				1										17-0/8	69	
L R D05		AC	A02F2	1-01 *											70	
L R D05		A02F2		1-02 *											70	
L R D05		E04P2		1-03 *											70	
L R D05				1										17-1/8	70	
L R D06		A01F1		1-01 *											71	
L R D06		A02F1		1-02 *											71	
L R D06		E04S2		1-03 *											71	
L R D06				1										17-2/8	71	
L R D07		A01H2		1-01 *											72	
L R D07		A02H2		1-02 *											72	
L R D07		E04U2		1-03 *											72	
L R D07				1										17-2/8	72	
L R D08		A01H1		1-01 *											73	
L R D08		A02H1		1-02 *											73	
L R D08		E03C1		1-03 *											73	
L R D08				1										15-2/8	73	
L R D09		A01J2		1-01 *											74	
L R D09		A02J2		1-02 *											74	
L R D09		E03E2		1-03 *											74	
L R D09				1										15-4/8	74	
L R D10		A01J1		1-01 *											75	
L R D10		A02J1		1-02 *											75	
L R D10		E03H2		1-03 *											75	
L R D10				1										15-6/8	75	
L R D11		A01K2		1-01 *											76	
L R D11		A02K2		1-02 *											76	
L R D11		E03K2		1-03 *											76	
L R D11				1										15-6/8	76	

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RUN NAME	A/P	PIN	ORDER	BAY -	Q	DRAW	RV	PG	Y	X	Z	REMARKS	19-DEC-73	9:49	EXCEPTIONS	PAGE 9
	NAME	PIN	ORDER											LENGTH	RUN NUMBER	
L R D12		A01K1		1-01 *											77	
L R D12		A02K1		1-02 *											77	
L R D12		E03M2		1-03 *											77	
L R D12				1										16-2/8	77	
L R D13		A01L2		1-01 *											78	
L R D13		A02L2		1-02 *											78	
L R D13		E03P2		1-03 *											78	
L R D13				1										16-2/8	78	
L R D14		A01L1		1-01 *											79	
L R D14		A02L1		1-02 *											79	
L R D14		E03S2		1-03 *											79	
L R D14				1										16-4/8	79	
L R D15		A01M2		1-01 *											80	
L R D15		A02M2		1-02 *											80	
L R D15		E03U2		1-03 *											80	
L R D15				1										16-4/8	80	
LEFT A00		R02H2	R01H2	1-01 *											81	
LEFT A00		R01H2		1-02 *											81	
LEFT A00		D01P2		1-03 *											81	
LEFT A00				1										11-5/8	81	
LEFT A01		R02H1		1-01 *											82	
LEFT A01		R01H1		1-02 *											82	
LEFT A01		D01B1		1-03 *											82	
LEFT A01				1										9-6/8	82	
LEFT A02		R02J2		1-01 *											83	
LEFT A02		R01J2		1-02 *											83	
LEFT A02		D01S2		1-03 *											83	
LEFT A02				1										11-2/8	83	
LEFT A03		R02J1		1-01 *											84	
LEFT A03		R01J1		1-02 *											84	
LEFT A03		D01P1		1-03 *											84	
LEFT A03				1										11-0/8	84	
LEFT A04		R02K2		1-01 *											85	
LEFT A04		R01K2		1-02 *											85	
LEFT A04		D01U2		1-03 *											85	
LEFT A04				1										11-2/8	85	

D811A.H RUN NAME	HNU208.V22(22) 11/06/73						19-DEC-73	9149	PAGE 10					
	A/P	PIN	ORDER	BAY -	U	DRAW	RV	PG	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
		NAME	PIN	ORDER										
LEFT A05			R02K1	1-01 *						2				86
LEFT A05			R01K1	1-02 *						1				86
LEFT A05			D01U1	1-03 *										86
LEFT A05				1-								11-2/8		86
LEFT A06			R02L2	1-01 *						2				87
LEFT A06			R01L2	1-02 *						1				87
LEFT A06			E01P2	1-03 *										87
LEFT A06				1-								13-2/8		87
LEFT A07		R02L1	R01L1	1-01 *						2				88
LEFT A07		R01L1		1-02 *						1		4-3		88
LEFT A07		E01B1		1-03 *										88
LEFT A07				1-								12-1/8		88
LEFT A08			R02M2	1-01 *						2				89
LEFT A08			R01M2	1-02 *						1				89
LEFT A08			E01S2	1-03 *										89
LEFT A08				1-								13-2/8		89
LEFT A09			R02M1	1-01 *						2				90
LEFT A09			R01M1	1-02 *						1				90
LEFT A09			E01P1	1-03 *										90
LEFT A09				1-								13-0/8		90
LEFT A10			R02N2	1-01 *						2				91
LEFT A10			R01N2	1-02 *						1				91
LEFT A10			E01U2	1-03 *										91
LEFT A10				1-								13-4/8		91
LEFT A11			R02N1	1-01 *						2				92
LEFT A11			R01N1	1-02 *						1				92
LEFT A11			E01U1	1-03 *										92
LEFT A11				1-								13-4/8		92
LEFT A12		R02P2	R01P2	1-01 *						2				93
LEFT A12		R01P2		1-02 *						1		6-3		93
LEFT A12		E01P2		1-03 *										93
LEFT A12				1-								16-1/8		93
LEFT A13			R02P1	1-01 *						2				94
LEFT A13			R01P1	1-02 *						1				94
LEFT A13			E01H1	1-03 *										94
LEFT A13				1-								14-2/8		94

DB11A.H RUN NAME	HND288.V22(22) 11/06/73							19-DEC-73	9:49	PAGE 11					
	A/P	PIN	ORDER	BAY -	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
		NAME	PIN	ORDER											
LEFT A14		B02R2	B01R2	1-01 *						2					95
LEFT A14		B01R2		1-02 *						1		6-4			95
LEFT A14		F01S2		1-03 *											95
LEFT A14				1									16-3/8		95
LEFT A15		B02R1		1-01 *						2					96
LEFT A15		B01R1		1-02 *						1					96
LEFT A15		F01P1		1-03 *											96
LEFT A15				1									15-4/8		96
LEFT A16		B02S2	B01S2	1-01 *						2					97
LEFT A16		B01S2		1-02 *						1		6-4			97
LEFT A16		F01U2		1-03 *											97
LEFT A16				1									16-3/8		97
LEFT A17		B02S1	B01S1	1-01 *						2					98
LEFT A17		B01S1		1-02 *						1		6-3			98
LEFT A17		F01U1		1-03 *											98
LEFT A17				1									16-1/8		98
LEFT BG4		B01E2		1-01 *						2					99
LEFT BG4		B02E2		1-02 *						1					99
LEFT BG4		E02M2		1-03 *											99
LEFT BG4				1									13-4/8		99
LEFT BG4 BUF		C03J2		1-01 *						1					100
LEFT BG4 BUF		E02N2		1-02 *											100
LEFT BG4 BUF				1									8-2/8		100
LEFT BG5		B01B1		1-01 *						2					101
LEFT BG5		B02B1		1-02 *						1					101
LEFT BG5		E02K2		1-03 *											101
LEFT BG5				1									13-6/8		101
LEFT BG5 BUF		C03F2		1-01 *						1					102
LEFT BG5 BUF		E02L2		1-02 *											102
LEFT BG5 BUF				1									8-2/8		102
LEFT BG6		B01A1		1-01 *						2					103
LEFT BG6		B02A1		1-02 *						1					103
LEFT BG6		E02H2		1-03 *											103
LEFT BG6				1									13-6/8		103
LEFT BG6 BUF		C03H2		1-01 *						1					104
LEFT BG6 BUF		E02J2		1-02 *											104
LEFT BG6 BUF				1									8-0/8		104

DB11A.H RUN NAME	HND28R.V22(22) 11/06/73							19-DEC-73	9149	PAGE 12				
	A/P	PIN	UPORDER	BAY - NAME	Q	DRAW	HV	PG	X	Z	RFMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
LEFT BG7		A01V1	A02V1	1-01 *					2					105
LEFT BG7		A02V1		1-02 *					1			6-0		105
LEFT BG7		E02E2		1-03 *										105
LEFT BG7				1								15-3/8		105
LEFT BG7 BUF		C03E2		1-01 *					1					106
LEFT BG7 BUF		E02F2		1-02 *									8-0/8	106
LEFT BG7 BUF				1										106
LEFT BR4		R01		1-01 *					2					107
LEFT BR4		R01U2		1-02 *					1					107
LEFT BR4		F02M2		1-03 *										107
LEFT BR4				1								16-4/8		107
LEFT BRS		R01C1		1-01 *					2					108
LEFT BRS		R02C1		1-02 *					1					108
LEFT BRS		F02K2		1-03 *										108
LEFT BRS				1								16-4/8		108
LEFT BR6		A01U2	A02U2	1-01 *					2					109
LEFT BR6		A02U2		1-02 *					1			7-5		109
LEFT BR6		F02H2		1-03 *										109
LEFT BR6				1								18-5/8		109
LEFT BR7		A01T2		1-01 *					2					110
LEFT BR7		A02T2		1-02 *					1					110
LEFT BR7		F02E2		1-03 *										110
LEFT BR7				1								17-0/8		110
LEFT BUF BBSY		D03A1										1-PIN RUN		111
LEFT BUF C00		D03P2										1-PIN RUN		112
LEFT BUF C01		D03M2										1-PIN RUN		113
LEFT BUF DCLO		C03R1										1-PIN RUN		114
LEFT BUF MSYN		D03H1										1-PIN RUN		115
LEFT BUF SSYN		D03F2										1-PIN RUN		116
LEFT BUS ACLO		R01F1		1-01 *					2					117
LEFT BUS ACLO		R02F1		1-02 *					1					117
LEFT BUS ACLO		C03M2	A03R2	1-03 *					2					117
LEFT BUS ACLO		A03R2		1-04 *										117
LEFT BUS ACLO				1								15-6/8		117

DB11A.H RUN NAME	HND288.V22(22) 11/06/73							19-DEC-73	9849	PAGE 13				
	A/P	PIN	ORDER	BAY -	Q	DRAW	RV	PG	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
		NAME	PIN	ORDER										
LEFT BUS BBSY		A01P2	A02P2	1-01 *						2				118
LEFT BUS BBSY		A02P2	C01C1	1-02 *						1		3-2		118
LEFT BUS BBSY		C01C1		1-03 *										118
LEFT BUS BBSY				1								9-7/8		118
LEFT BUS COO		A01U2		1-01 *						2				119
LEFT BUS COO		A02U2		1-02 *						1				119
LEFT BUS COO		D03R2		1-03 *										119
LEFT BUS COO				1								10-2/8		119
LEFT BUS C01		B02T2		1-01 *						2				120
LEFT BUS C01		A01T2	D03S1	1-02 *						1				120
LEFT BUS C01		D03S1		1-03 *										120
LEFT BUS C01				1								10-4/8		120
LEFT BUS DCLO		B01F2		1-01 *						2				121
LEFT BUS DCLO		B02F2		1-02 *						1				121
LEFT BUS DCLO		C03U2	A03S2	1-03 *						2				121
LEFT BUS DCLO		A03S2		1-04 *										121
LEFT BUS DCLO				1								17-0/8		121
LEFT BUS INIT		A01A1		1-01 *						2				122
LEFT BUS INIT		A02A1		1-02 *						1				122
LEFT BUS INIT		C03K2		1-03 *										122
LEFT BUS INIT				1								11-6/8		122
LEFT BUS INTR		A01B1		1-01 *						2				123
LEFT BUS INTR		A02B1		1-02 *						1				123
LEFT BUS INTR		C03P1		1-03 *										123
LEFT BUS INTR				1								12-0/8		123
LEFT BUS MSYN		B01V1		1-01 *						2				124
LEFT BUS MSYN		B02V1		1-02 *						1				124
LEFT BUS MSYN		D03L2		1-03 *										124
LEFT BUS MSYN				1								9-6/8		124
LEFT BUS NPG		A01U1	A02U1	1-01 *						2				125
LEFT BUS NPG		A02U1		1-02 *						1		5-5		125
LEFT BUS NPG		E02C1		1-03 *										125
LEFT BUS NPG				1								14-5/8		125
LEFT BUS PA		A01M1		1-01 *						2				126
LEFT BUS PA		A02M1		1-02 *						1				126
LEFT BUS PA		D03D1		1-03 *										126
LEFT BUS PA				1								12-4/8		126

DB11A.H HND288,V22(22) 11/06/73
 RUN NAME A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS 19-DEC-73 9:49 LENGTH EXCEPTIONS PAGE 14
 NAME PIN ORDER

LEFT BUS PB	A01N2	1-01 *																127
LEFT BUS PR	A02N2	1-02 *																127
LEFT BUS PR	D03D2	1-03 *																127
LEFT BUS PB		1															12-2/8	127
LEFT BUS SACK	A01R2	1-01 *																128
LEFT BUS SACK	A02R2	1-02 *																128
LEFT BUS SACK	C03R2	1-03 *																128
LEFT BUS SACK		1															10-4/8	128
LEFT BUS SSYN	B0	1-01 *																129
LEFT BUS SSYN	B02U1	1-02 *																129
LEFT BUS SSYN	D03J2	1-03 *																129
LEFT BUS SSYN		1															9-4/8	129
LEFT NPG BUF	C03D1	1-01 *																130
LEFT NPG BUF	E02D2	1-02 *															7-6/8	130
LEFT NPG BUF		1																130
LEFT NPR	A02S2	A01S2	1-01 *															131
LEFT NPR	A01S2	1-02 *															7-0	131
LEFT NPR	F02C1	1-03 *															17-3/8	131
LEFT NPR		1																131
R8 D00	A04C1	C04C1	1-01 *	2													3-7	132
R8 D00	C04C1	1-02 *															5-2	132
R8 D00	F04C1	1-03 *																132
R8 D00		1															19-4/8	132
R8 D01	A04D2	1-01 *																133
R8 D01	C04D2	1-02 *																133
R8 D01	F04E2	1-03 *																133
R8 D01		1															18-0/8	133
R8 D02	A04D1	C04D1	1-01 *	2													3-6	134
R8 D02	C04D1	1-02 *															5-2	134
R8 D02	F04H2	1-03 *																134
R8 D02		1															19-2/8	134
R8 D03	A04E2	C04E2	1-01 *															135
R8 D03	C04E2	1-02 *															5-2	135
R8 D03	F04K2	1-03 *																135
R8 D03		1															18-5/8	135

DB11A.H HND288,V22(22) 11/06/73
 RUN NAME A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS 19-DEC-73 9:49 LENGTH EXCEPTIONS PAGE 15
 NAME PIN ORDER

R8 D04	A04E1	C04E1	1-01 *	2													3-6	136
R8 D04	C04E1	1-02 *															5-4	136
R8 D04	F04M2	1-03 *																136
R8 D04		1															19-6/8	136
R8 D05	A04F2	1-01 *																137
R8 D05	C04F2	1-02 *																137
R8 D05	F04P2	1-03 *																137
R8 D05		1															18-6/8	137
R8 D06	A04F1	C04F1	1-01 *	2													3-6	138
R8 D06	C04F1	1-02 *															5-5	138
R8 D06	F04S2	1-03 *																138
R8 D06		1															20-0/8	138
R8 D07	A04H2	C04H2	1-01 *															139
R8 D07	C04H2	1-02 *															5-5	139
R8 D07	F04U2	1-03 *																139
R8 D07		1															19-3/8	139
R8 D08	A04H1	1-01 *															3-7	140
R8 D08	C04H1	1-02 *																140
R8 D08	F03C1	1-03 *																140
R8 D08		1															18-3/8	140
R8 D09	A04J2	1-01 *																141
R8 D09	C04J2	1-02 *																141
R8 D09	F03E2	1-03 *																141
R8 D09		1															17-6/8	141
R8 D10	A04J1	1-01 *	2														3-6	142
R8 D10	C04J1	1-02 *																142
R8 D10	F03H2	1-03 *																142
R8 D10		1															18-5/8	142
R8 D11	A04K2	1-01 *																143
R8 D11	C04K2	1-02 *																143
R8 D11	F03K2	1-03 *																143
R8 D11		1															18-0/8	143
R8 D12	A04K1	1-01 *	2														3-7	144
R8 D12	C04K1	1-02 *																144
R8 D12	F03M2	1-03 *																144
R8 D12		1															19-1/8	144

DB11A.H HND268.V22(22) 11/06/73
 RUN NAME A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS 19-DEC-73 9849 LENGTH FACEPISTONS PAGE 17
 NAME PIN ORDER

RB D13		A04L2	1-01 *												145
RB D13		C04L2	1-02 *												145
RB D13		F03P2	1-03 *												145
RB D13			1											18-4/8	145
RB D14		A04L1	1-01 *	2										3-6	146
RB D14		C04L1	1-02 *												146
RB D14		F03S2	1-03 *											19-3/8	146
RB D14			1												146
RB D15		A04M2	1-01 *											2	147
RB D15		C04M2	1-02 *											1	147
RB D15		F03U2	1-03 *											18-6/8	147
RB D15			1												147
RIGHT A00		B04H2	1-01 *											1	148
RIGHT A00		D04H2	1-02 *											2	148
RIGHT A00		E01C1	1-03 *												148
RIGHT A00			1											11-6/8	148
RIGHT A01		B04H1	1-01 *	1										1	149
RIGHT A01		D04H1	1-02 *											2	149
RIGHT A01		E01N2	1-03 *												149
RIGHT A01			1											12-1/8	149
RIGHT A02		B04J2	1-01 *											1	150
RIGHT A02		D04J2	1-02 *											2	150
RIGHT A02		E01F1	1-03 *												150
RIGHT A02			1											11-6/8	150
RIGHT A03		B04J1	1-01 *	1										1	151
RIGHT A03		D04J1	1-02 *											2	151
RIGHT A03		E01E1	1-03 *												151
RIGHT A03			1											12-3/8	151
RIGHT A04		B04K2	1-01 *											1	152
RIGHT A04		D04K2	1-02 *											2	152
RIGHT A04		E01L1	1-03 *												152
RIGHT A04			1											11-4/8	152
RIGHT A05		B04K1	1-01 *	1										1	153
RIGHT A05		D04K1	1-02 *											2	153
RIGHT A05		E01K1	1-03 *												153
RIGHT A05			1											12-1/8	153

DB11A.H HND268.V22(22) 11/06/73
 RUN NAME A/P PIN ORDER BAY - Q DRAW RV PG Y X Z REMARKS 19-DEC-73 9849 LENGTH EXCEPTIONS PAGE 17
 NAME PIN ORDER

RIGHT A06		B04L2	1-01 *											1	154
RIGHT A06		D04L2	1-02 *											2	154
RIGHT A06		E01C1	1-03 *												154
RIGHT A06			1											12-4/8	154
RIGHT A07		B04L1	1-01 *	1										1	155
RIGHT A07		D04L1	1-02 *											2	155
RIGHT A07		E01N2	1-03 *												155
RIGHT A07			1											13-7/8	155
RIGHT A08		B04M2	1-01 *											1	156
RIGHT A08		D04M2	1-02 *											2	156
RIGHT A08		E01F1	1-03 *												156
RIGHT A08			1											12-4/8	156
RIGHT A09		B04M1	1-01 *	1										1	157
RIGHT A09		D04M1	1-02 *											2	157
RIGHT A09		E01E1	1-03 *												157
RIGHT A09			1											13-1/8	157
RIGHT A10		B04N2	1-01 *											1	158
RIGHT A10		D04N2	1-02 *											2	158
RIGHT A10		E01L1	1-03 *												158
RIGHT A10			1											12-6/8	158
RIGHT A11		B04N1	1-01 *	1										1	159
RIGHT A11		D04N1	1-02 *											2	159
RIGHT A11		E01K1	1-03 *												159
RIGHT A11			1											13-3/8	159
RIGHT A12		B04P2	1-01 *											2	160
RIGHT A12		D04P2	1-02 *											1	160
RIGHT A12		E01C1	1-03 *												160
RIGHT A12			1											14-4/8	160
RIGHT A13		B04P1	1-01 *	1										1	161
RIGHT A13		D04P1	1-02 *											2	161
RIGHT A13		E01N2	1-03 *												161
RIGHT A13			1											16-1/8	161
RIGHT A14		B04R2	1-01 *											2	162
RIGHT A14		D04R2	1-02 *											1	162
RIGHT A14		E01F1	1-03 *												162
RIGHT A14			1											15-1/8	162

DB11A.H RUN NAME	HND200.V22(22) 11/06/73							19-DFC-73	Y144	PAGE 18								
	A/P	PIN	ORDER	BAY - NAME	PIN	ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	FACEPLTJS	BLK. NUMBER	
RIGHT A15		B04R1	1-01 *										2		3-6		164	
RIGHT A15		D04R1	1-02 *										1				164	
RIGHT A15		F01E1	1-03 *														164	
RIGHT A15			1												15-3/8		164	
RIGHT A16		B04S2	1-01 *										2				164	
RIGHT A16		D04S2	1-02 *										1				164	
RIGHT A16		F01L1	1-03 *														164	
RIGHT A16			1												15-2/8		164	
RIGHT A17		B04	1-01 *										2		3-6		165	
RIGHT A17		D04S1	1-02 *										1				165	
RIGHT A17		F01K1	1-03 *														165	
RIGHT A17			1												15-5/8		165	
RIGHT BG4		B04E2	D04E2	1-01 *	H								2	TWP			166	
RIGHT BG4		D04E2	F02F2	1-02 *	H								1	TWP			166	
RIGHT BG4		F02F2		1-03 *												TU HERE	166	
RIGHT BG4				1											15-4/8		166	
RIGHT BG4 BUF		C03F1		1-01 *									1				167	
RIGHT BG4 BUF		F02V2		1-02 *													167	
RIGHT BG4 BUF				1											12-0/8		167	
RIGHT BG5		B04B1	D04B1	1-01 *	H								2	TWP			168	
RIGHT BG5		D04B1	F02T2	1-02 *	H								1	TWP			168	
RIGHT BG5		F02T2		1-03 *												TU HERE	168	
RIGHT BG5				1											17-2/8		168	
RIGHT BG5 BUF		C03C1		1-01 *	1								1		6-3		169	
RIGHT BG5 BUF		F02S1		1-02 *												13-3/8		169
RIGHT BG5 BUF				1													169	
RIGHT BG6		B04A1	D04A1	1-01 *	H								2	TWP			170	
RIGHT BG6		D04A1	F02N2	1-02 *	H								1	TWP			170	
RIGHT BG6		F02N2		1-03 *												TU HERE	170	
RIGHT BG6				1											16-6/8		170	
RIGHT BG6 BUF		C03H1		1-01 *									1				171	
RIGHT BG6 BUF		F02L2		1-02 *													171	
RIGHT BG6 BUF				1											10-6/8		171	
RIGHT BG7		A04V1	C04V1	1-01 *	H								2	TWP			172	
RIGHT BG7		C04V1	F02K1	1-02 *	H								1	TWP			172	
RIGHT BG7		F02K1		1-03 *												TU HERE	172	
RIGHT BG7				1											17-2/8		172	

DB11A.H RUN NAME	HND288.V22(22) 11/06/73							19-DEC-73	9:49	PAGE 19				
	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
RIGHT RG7 BUF		C03D2		1-01 *						1		6-0		173
RIGHT RG7 HUF		F02J1		1-02 *						1				173
RIGHT RG7 BUF				1								12-5/s		173
RIGHT RR4		R04D2		1-01 *						1				174
RIGHT RR4		D04D2		1-02 *						2				174
RIGHT RR4		E02L1		1-03 *						1				174
RIGHT RR4				1								13-6/s		174
RIGHT BR5		B04C1		1-01 *	1					1		3-7		175
RIGHT BR5		D04C1	E02J1	1-02 *						2				175
RIGHT BR5		F02J1		1-03 *						1				175
RIGHT BR5				1								14-1/s		175
RIGHT BR6		A04U2		1-01 *						2				176
RIGHT BR6		C04U2		1-02 *						1				176
RIGHT BR6		E02F1		1-03 *						1				176
RIGHT BR6				1								14-2/s		176
RIGHT BR7		C04T2		1-01 *						2				177
RIGHT BR7		E02U1	A04T2	1-02 *						1				177
RIGHT BR7		A04T2		1-03 *						1				177
RIGHT BR7				1								16-6/s		177
RIGHT BUF ACLO		C03L2										1-PIN RUN		178
RIGHT BUF BBSY		C03V1										1-PIN RUN		179
RIGHT BUF ACLO		C03S2										1-PIN RUN		180
RIGHT BUF MSYN		D03J1										1-PIN RUN		181
RIGHT BUF SACK		C03P2										1-PIN RUN		182
RIGHT BUF SSYN		D03K2										1-PIN RUN		183
RIGHT BUS ACLO		A04F1	C03K1	1-01 *						1				184
RIGHT BUS ACLO		C03K1		1-02 *						2		2-4		184
RIGHT BUS ACLO		D04F1		1-03 *						1				184
RIGHT BUS ACLO				1								11-1/s		184
RIGHT BUS BBSY		A04P2		1-01 *						1				185
RIGHT BUS BMSY		C04P2	C01U2	1-02 *						2				185
RIGHT BUS BBSY		C01U2		1-03 *						1				185
RIGHT BUS BBSY				1								11-4/s		185

RUN NAME	HND2 V22(22) 11/06/73				Q	DRAW	HV	PG	Y	X	Z	REMARKS	14-DEC-73	9:49	PAGE 20		
	A/P	PIN	ORDER	BAY -										LENGTH	EXCEPTIONS	SCHEM	NUMBER
RIGHT BUS C00	B04U2	1-01 *				1										186	
RIGHT BUS C00	D04U2	1-02 *				2										186	
RIGHT BUS C00	D03S2	1-03 *														186	
RIGHT BUS C00		1														186	
RIGHT BUS C01	B04I2	1-01 *	1			1								3-3'		187	
RIGHT BUS C01	D03N2	1-02 *				2										187	
RIGHT BUS C01	D04T2	1-03 *														187	
RIGHT BUS C01		1												10-4/8		187	
RIGHT BUS DCL0	B04F2	C03T2	1-01 *														188
RIGHT BUS DCL0	C03T2	1-02 *												7-0		188	
RIGHT BUS DCL0	D04F2	1-03 *														188	
RIGHT BUS DCL0		1													20-7/H		188
RIGHT BUS INIT	A04A1	1-01 *													3-7		189
RIGHT BUS INIT	C04A1	1-02 *															189
RIGHT BUS INIT	C03L1	1-03 *															189
RIGHT BUS INIT		1													12-1/H		189
RIGHT BUS INTR	A04B1	1-01 *													3-6		190
RIGHT BUS INTR	C04B1	1-02 *															190
RIGHT BUS INTR	C03N1	1-03 *															190
RIGHT BUS INTR		1													11-7/H		190
RIGHT BUS MSYN	B04V1	1-01 *															191
RIGHT BUS MSYN	D03K1	1-02 *															191
RIGHT BUS MSYN	D04V1	1-03 *															191
RIGHT BUS MSYN		1													10-4/H		191
RIGHT BUS NPG	A04U1	1-01 *															192
RIGHT BUS NPG	C03H1	1-02 *															192
RIGHT BUS NPG	C04U1	1-03 *															192
RIGHT BUS NPG		1													10-4/H		192
RIGHT BUS PA	A04M1	1-01 *													3-7		193
RIGHT BUS PA	C04M1	1-02 *															193
RIGHT BUS PA	D03E1	1-03 *															193
RIGHT BUS PA		1													12-1/H		193
RIGHT BUS PR	A04N2	1-01 *															194
RIGHT BUS PR	C04N2	1-02 *															194
RIGHT BUS PR	D03E2	1-03 *															194
RIGHT BUS PR		1													12-0/H		194

RUN NAME	HND268.V22(22) 11/06/73				Q	DRAW	HV	PG	Y	X	Z	REMARKS	19-DEC-73	9:49	PAGE 21		
	A/P	PIN	ORDER	BAY -										LENGTH	EXCEPTIONS	SCHEM	NUMBER
RIGHT BUS SACK	A04R2	1-01 *				1										185	
RIGHT BUS SACK	C04K2	1-02 *				2										185	
RIGHT BUS SACK	C03N2	1-03 *														185	
RIGHT BUS SACK		1													10-4/H		185
RIGHT BUS SSYN	B04U1	1-01 *															186
RIGHT BUS SSYN	D03H2	1-02 *															186
RIGHT BUS SSYN	D04U1	1-03 *															186
RIGHT BUS SSYN		1													10-2/H		186
RIGHT NPR	A04S2	1-01 *															187
RIGHT NPR	C04S2	1-02 *															187
RIGHT NPR	F02A1	1-03 *															187
RIGHT NPR		1													14-0/H		187

EPHOR LISTIN

WIPE WRAP RUN NAME	HNU2RH.V22(22) 11/06/73		A/P	PTN NAME	UPDER PIN	HAY - UPDER	W	DRAW	RV	PG	Y	X	Z	REMARKS	19-DEC-73	9:49	PAGE 1
															LENGTH	EXCEPTIONS	RUN NUMBER
H INTI				C03J1													
LEFT RUF BBSY				D03A1												1-PIN RUN	11
LEFT RUF COG				D03P2												1-PIN RUN	111
LEFT RUF CO1				D03M2												1-PIN RUN	112
LEFT RUF DCLO				C03R1												1-PIN RUN	113
LEFT RUF MSYN				D03H1												1-PIN RUN	114
LEFT RUF SSYN				D03F2												1-PIN RUN	115
RIGHT RG4				B04E2	D04E2	1-01 *	H					2	TWP			HAND WIRE	166
RIGHT RG4				D04E2	F02E2	1-02 *	H					1	TWP			HAND WIRE	166
RIGHT RG4				F02E2		1-03 *										TO HERE	166
RIGHT RG5				B04H1	D04H1	1-01 *	H					2	TWP			HAND WIRE	168
RIGHT RG5				D04H1	F02T2	1-02 *	H					1	TWP			HAND WIRE	168
RIGHT RG5				F02T2		1-03 *										TO HERE	168
RIGHT RG6				B04A1	D04A1	1-01 *	H					2	TWP			HAND WIRE	170
RIGHT RG6				D04A1	F02N2	1-02 *	H					1	TWP			HAND WIRE	170
RIGHT RG6				F02N2		1-03 *										TO HERE	170
RIGHT RG7				A04V1	C04V1	1-01 *	H					2	TWP			HAND WIRE	172
RIGHT RG7				C04V1	F02K1	1-02 *	H					1	TWP			HAND WIRE	172
RIGHT RG7				F02K1		1-03 *										TO HERE	172
RIGHT RUF ACLO				C03L2												1-PIN RUN	178
RIGHT RUF BBSY				C03V1												1-PIN RUN	179
RIGHT RUF DCLO				C03S2												1-PIN RUN	180
RIGHT RUF MSYN				D03J1												1-PIN RUN	181
RIGHT RUF SACK				C03P2												1-PIN RUN	182
RIGHT RUF SSYN				D03K2												1-PIN RUN	183

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 1/3/71

TITLE DB11-A Bus Repeater

REVIEWS

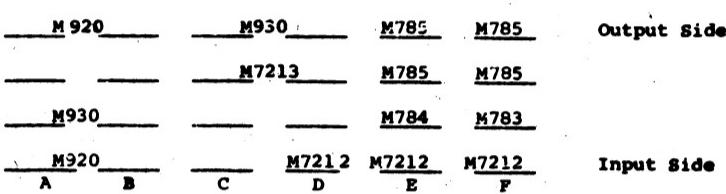
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	REVISED PER ECO 60002	00002			1/9/71	
B	ECO CHANGE	60005	PAS-TAN	6-14-72	INIT.	1/1/73
C	CHANGE PER ECO	DB11A-REILLY	10-13	1/2/73	100008	10/3/73

The bus repeater will allow the extension of the Unibus beyond 18 unit loads. The bus repeater will not degrade the bus cycle time of any device before the bus repeater, and will add a maximum 375ns to cycle time of devices addressed beyond the bus repeater. The repeater will allow 18 more loads to be hung on the Unibus.

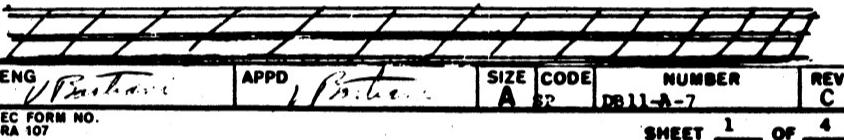
1.1 The bus repeater DB11 will be contained in a single system unit with an input and output unibus connection. The modules required are:

- a. 4 - M785 Transceivers
- b. 1 - M783 Drivers
- c. 1 - M784 Receivers
- d. 3 - M7212 Address Buffer Cards
- e. 1 - M7213 Buffer Master Card
- f. 2 - M930 Resistor Termination Cards
- g. 1 - M7246 UNIBUS REPEATER BUS BUSY

A layout of the modules is shown below:



NOTE:1 The Unibus is Bidirectional, but the bus repeater is not symmetrical i.e. the processor must be on the input side of the bus repeater. This is because certain one-direction unibus signals are implemented in only one direction. All signals which must be bidirectional are so implemented.



TITLE DB11-A Bus Repeater

CONTINUATION SHEET

ENG [Signature] APPD [Signature] SIZE A SP CODE DB11-A-7 REV C

DEC FORM NO.

DRA 107

SHEET 1 OF 4

TITLE DB11-A Bus Repeater

CONTINUATION SHEET

Power Used:

+5 Volts @ 2.2 Amps
1.2 Unit will operate from +40°F to 120°F with relative humidity of 95%.

1.3 Unit will add zero time to bus cycles before the repeater, and 375ns worst case to bus cycles of units addressed beyond the bus repeat. All guaranteed timing on the primary unibus in terms of delay for deskewing etc., are preserved on the buffered section of the bus.

These guaranteed timings are:

- A lines good at device 75ns before MSYN;
 - A lines do not change at device before MSYN drops;
 - SSYN will arrive at device no more than 75ns before data is good;
 - INTR will arrive at processor no more than 75ns before data is good.
- The repeater represents one unit load to the primary bus.

1.4 Operation of the Repeater

The Repeater uses the BBSY circuit as a master controlling signal. The BBSY buffering circuit is a truly bidirectional circuit. From BBSY is determined the direction to enable the A-line circuits. Since the master is always asserting the A lines then by looking at BBSY the enabling signal for the A lines can be determined.

Next the direction of the D lines must be determined. This is determined from BBSY, CL, INTR signals. For DATI the D lines are enabled to the master, and for INTR the D lines are enabled to the Processor. The SSYN circuit direction is determined from the same three circuit, BBSY, CL and INTR, but is determined differently than the D line circuits.

All one direction circuits require no gating to determine direction. These include INIT, INTR, all Grant, all B requests, SACK and ACLO.

The signal DCLO uses the identical circuit as BBSY since it must also be truly bidirectional because the power fail signal could be coming from either side of the buffer. The operations of the DCLO circuit is delayed an turn on so that a multi box system will turn on.

SIZE A SP CODE DB11-A-7 REV C

DEC FORM NO.

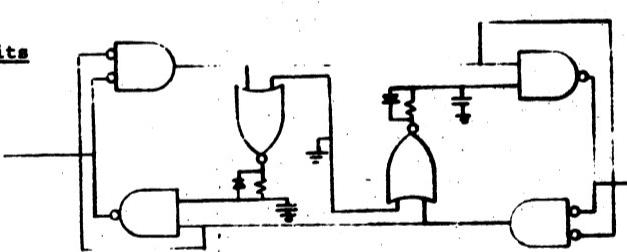
SHEET 2 OF 4

TITLE DB11-A Bus Repeater

CONTINUATION SHEET

Types of Circuits

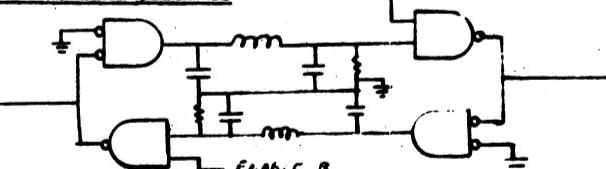
BBSY, DCLO



The BBSY circuit provides the A line gating depending on what side the master is on.

A line and C line Circuits

EXAMPLE A

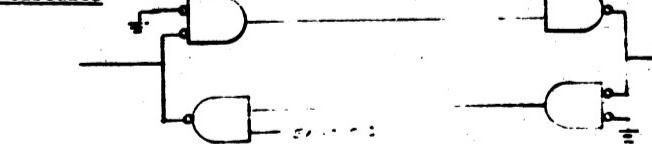


EXAMPLE B

The above LC networks are a linear phase filter which provides an equal 75ns delay to assertion and negation of the A lines. These delays are required to preserve the Unibus guaranteed timing (deskewing etc.).

D line Circuits

EXAMPLE C



The D line circuits are made up of M785 transceiver modules.

Unidirectional Lines

All unidirectional lines are made up of M783 and M784 modules connected together.

Programming

None, the unit is transparent to any programs.

DEC FORM NO.
DRA 107A

SIZE A SP CODE DB11-A-7 REV C

SHEET 3 OF 4

DEC FORM NO.
DRA 107A

SIZE A SP CODE DB11-A-7 REV C

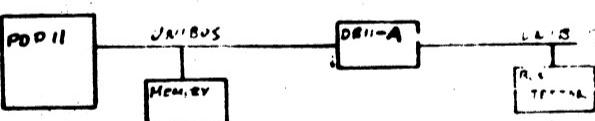
SHEET 4 OF 4

TITLE DB11-A Bus Repeater

CONTINUATION SHEET

Testing

Unit should be tested by placing it in series with the Unibus as shown in the fig



The above configuration should run ETP-2 for one hour with no errors.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

MADE BY V.Beston	CHECKED V.Beston
DATE 7/1/71	DATE 7/1/71
ENG V.Beston	PROD B.Zappo
DATE 7/1/71	DATE 7/9/71

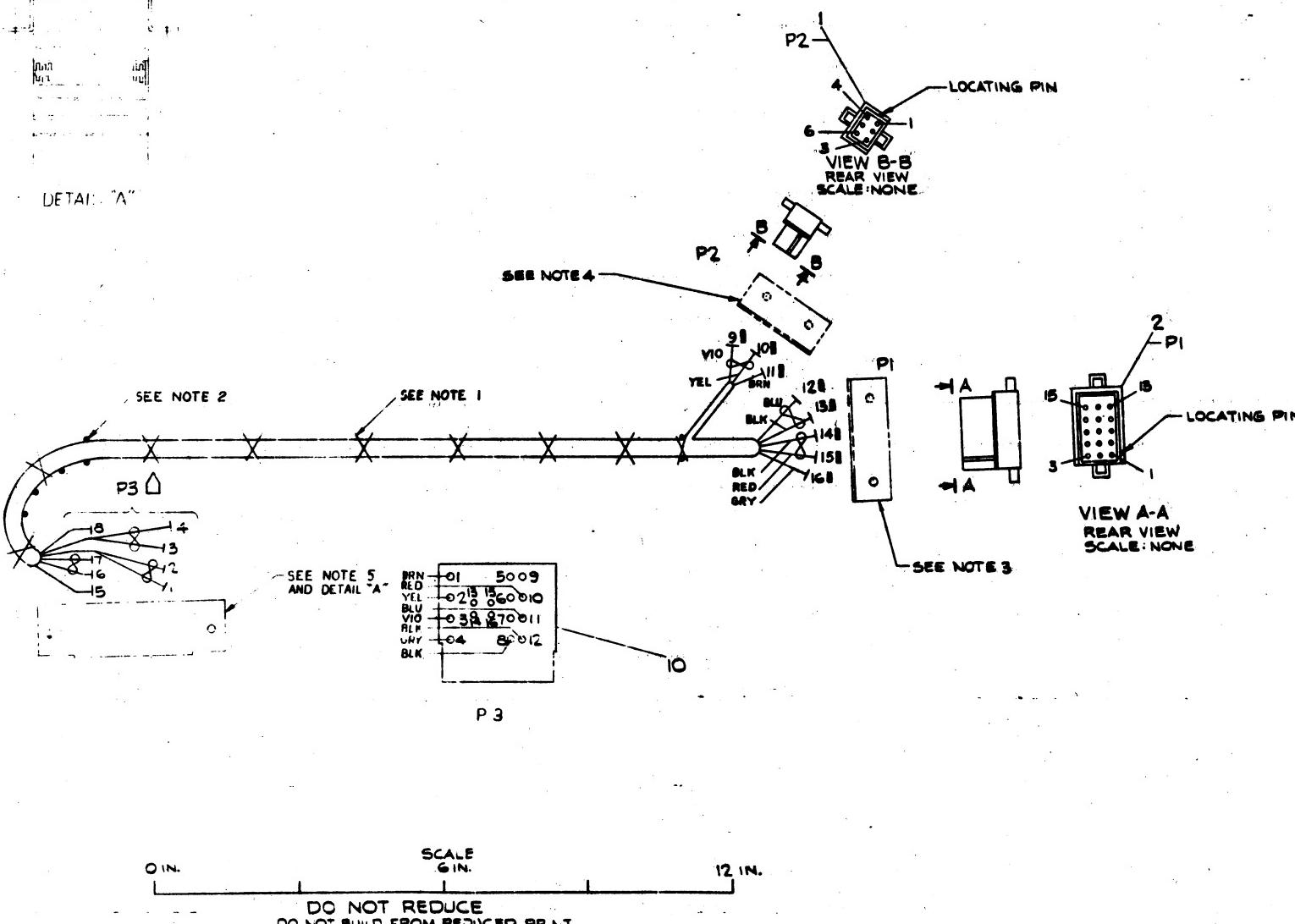
		LEGEND
	D	DOCUMENT
	DN	DOCUMENT CHANGE NOTICE
	PA	PAPER TAPE ASCII
	PB	PAPER TAPE BINARY
SECT.	PM	PAPER TAPE READ-IN-MODE

**DEC FORM NO
DRA 121**

WIRE TABLE										
ITEM NO.	FROM				TO				SIGNAL	
	ANG	COLOR	POINT	CONNECTION	TERM	POINT	CONNECTION	TERM		
5	14	RED	3	P3-10	P-10	15	P1-1	3	+5V	
	TWP	BLK	4	P3-8	SOL-3	14	P1-7	3	GND	
9	14	GRY	5	P3-4	SOLD	16	P1-2	3	+15V	
6	14	BLK	1	P3-12	SOLD	13	P1-9	3	GND	
16	TWP	BLU	2	P3-11	SOLD	12	P1-13	3	-15V	
8	16	BRN	8	P3-1	SOLD	11	P2-2	3	LTC	
7	8	VIO	6	P3-3	SOLD	9	P2-3	3	DELn	
	TWP	TEL	7	P3-2	SOLD	10	P2-4	3	ACLO	
11	22	-	-	P3-13	SOLD	-	P3-14	SOLD	DCLO	
11	22	-	-	P3-15	SOLD	-	P3-16	SOLD	ACLO	

NOTES:

1. USE THE ARROWS (X) ITEM #4 APPROXIMATELY EVERY THREE FEETLES WHEN NECESSARY AND AT EVERY BREAKOUT POINT.
2. DOT (•) INDICATES NAIL LOCATIONS FOR ASSEMBLY USE ONLY, COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.
3. USE CONN BRKT C-MD-930576-HG-C MOUNT W/TA WOOD SCREWS. USE MATING CONN 1-09350-3
4. USE CONN BRKT C-MD-930576-HG-C MOUNT W/ WOOD SCREWS. USE MATING CONN 1209308-Q6
5. USE CONN HOLD DOWN B-MD-930576-HG-C WITH PLATE B-MD-930576-7-7-10, USE TAPE DEC 9008734 & CONN TAPE DEC (1209123) REMOVE END OF PLATES AS SHOWN IN DETAIL "A" MOUNT WITH WOOD SCREWS.



**CAUTION - DRAWING SIZE AND
SCALE REDUCED FOR MICROFILM
NOT TO BE USED FOR PRODUCTION**

NR		BUSS WIRE #22AWG	910756001	11
I		POWER CONN	G772	C
A/R		WIRE #4AWG GRY	9107370-AB	9
A/R		WIRE #16AWG BRN	9107363-11	8
A/R		WIRE #16TWP YEL/VIO	9107450-47	7
A/R		WIRE #16TWP BLK/BLU	9107440-06	6
A/R		WIRE #14TWP BLK/PED	9107440-02	5
X		A/R WRAP TIE	9007031	4
I		S DIN, MALE	1209378-CC	3
I		HOUSING,CONN. 5PIN	1209351-15	2
SYM		I HOUSING,CONN. 6PIN	1209351-06	
QTY.		DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES		DATE	DATE	EQUIPMENT CORPORATION WICHITA, KAN. 67214-1115
DECALLS		DATE	DATE	
JIGS - 000		10/10/82	10/10/82	
JIGS - 001		10/10/82	10/10/82	
REMOVABLE SHEARS AND DIECAST SHEARS COMMON SURFACE QUALITY ✓		DATE	DATE	
MATERIAL		DATE	DATE	
NEXT REVIEW ABY:				
SEE PARTS LIST		SCALE 1/1	NUMBER	REV
PURCHASE		PRINT	8 IA 7009562-0	
PURCHASE		PRINT	DATE	

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 1/3/71

TITLE DB11-A Test Procedure

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG
V. BASTIANI
DEC FORM NO.
DRA 107A

APPD
V. BASTIANI

SIZE
A
CODE
SP

NUMBER
DB11-A-8
REV

SHEET 1 OF 2

ENGINEERING SPECIFICATION

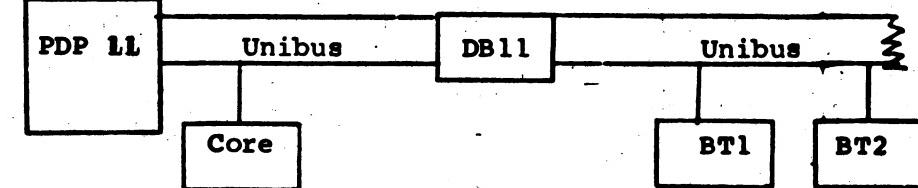
CONTINUATION SHEET

TITLE DB11-A Test Procedure

Items Needed:

- 1) PDP 11/20 with 8K core.
- 2) Two Bus Testors

Configure the system as shown in the figure.



- 1) Run ETP with both Bus Testors selected for 15 minutes with no errors.
- 2) Switch M7212 Card positions in the DB11-B as shown below.



- 3) Repeat step 1
- 4) Switch M7212 cards position as shown in step 2.
- 5) Repeat step 1

Test complete.

Acceptance Test:

- 1) Unit will have previously passed the test procedure above.
- 2) Customer system will be configured as it is to be shipped.
- 3) ETP will be run for the standard length of time with no errors.

SIZE
A
CODE
SP
NUMBER
DB11-A-8
REV

DEC FORM NO 16-1022
DRA 108

SHEET 2 OF 2

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE

TITLE In-House Acceptance Test DB11-A

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
-	-	-	-	-	-	-

PURPOSE

To insure with a high degree of confidence that the DB11 meets Engineering and Product Line Specifications.

PREREQUISITES

1. Successful completion of DB11 Manufacturing Test Procedure and/or Verification Procedure.
2. Successful completion of PDP-11 in-house acceptance test within the past 48 hours, if unit is to be shipped with a processor.

PROCEDURE

Documentation Check

1. All documents as specified in the DB11 MDL.
2. All documents specified below unless included in MDL or maintenance manual.

a. Circuit Schematics of all modules

1. M785 Transceiver
2. M783 Driver
3. M784 Receiver
4. M7212 Address Buffer
5. M7213 Buffer Master
6. M7248 Unibus Repeater
7. M930 Unibus Terminator

b. Logic interconnection with pins and signal names

- c. Wire List
- d. Maintenance Manual

Hardware Check

This will consist of running or testing any of the following or portions thereof:

1. DB11 Manufacturing Test Procedures
2. DB11 Engineering Specifications
3. GTP with two bus testers enabled for fifteen minutes
4. Switch M7212 cards position, repeat step 3

ENG	1 EASTMAN 9/7/71	APPD	W. JARRELL 9/7/71	SIZE A	CODE SP	NUMBER DB11-A-9	REV -
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DEC FORM NO.
DRA 107

SHEET 1 OF 2

ENGINEERING SPECIFICATION

100-1022

CONTINUATION SHEET

TITLE In House Acceptance Test DB11

5. Repeat step 4 once more.

6. Customer system will be configured as it is to be shipped. GTP will be run for one-half hour with no errors.

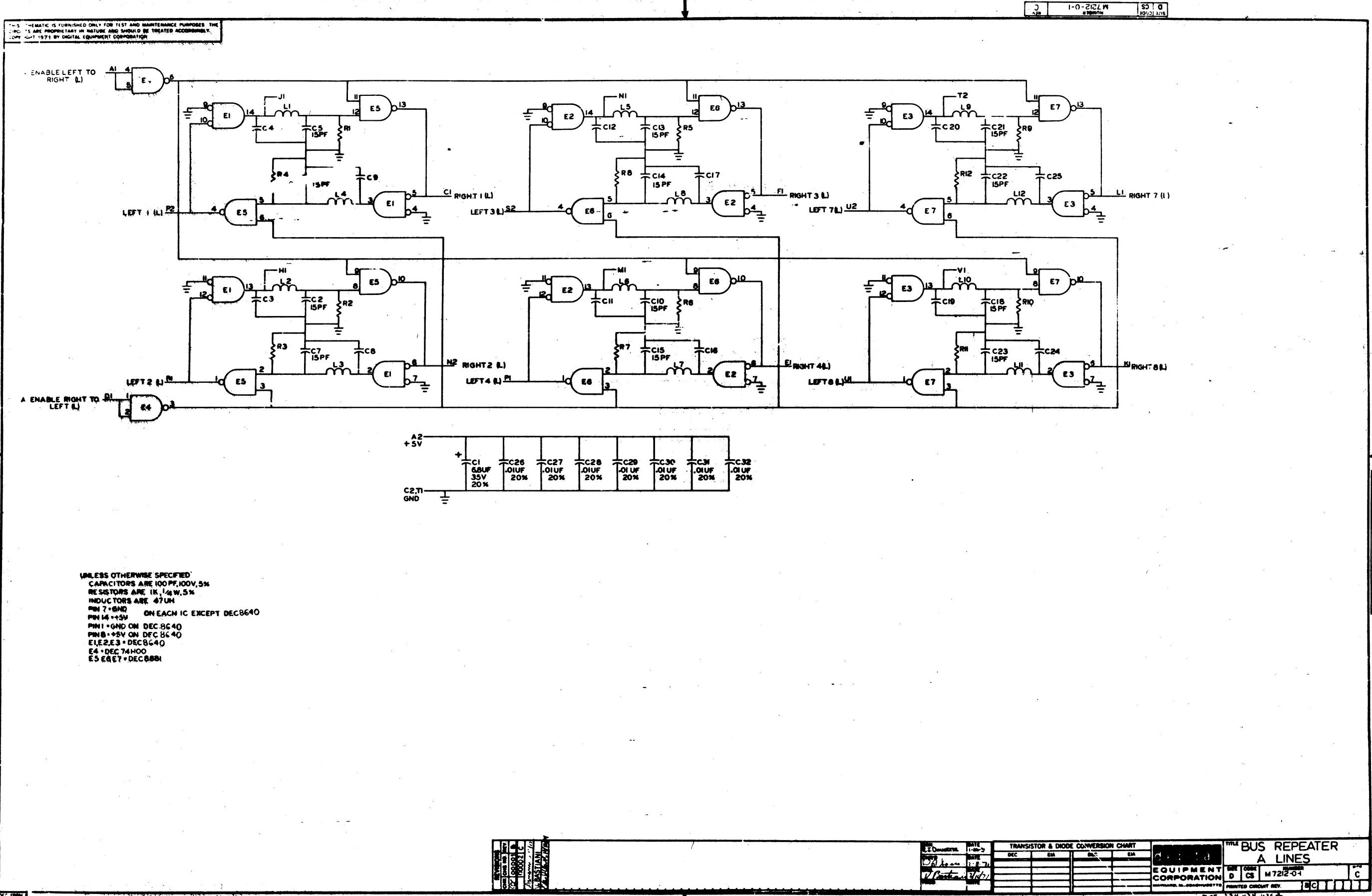
Check that proper mounting hardware is sent with unit, if shipped as an add on.

NOTE: The DB11 ADD ONS will be run on the Engineering machine temporarily.

J. Karpala	SIZE A	CODE SP	NUMBER DB11-A-9	REV -
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DEC FORM NO 10-1022
DRA 108

SHEET 2 OF 2



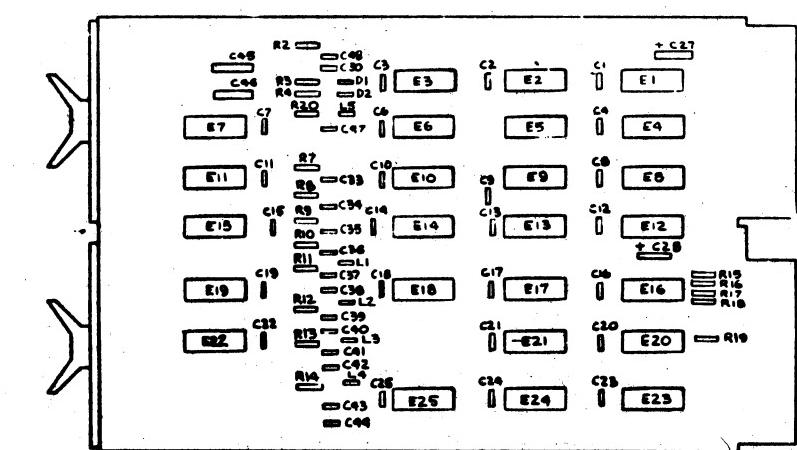
PARTS REFERENCE

NOTES:

1. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE. PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
 2. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

IC TYPE GND +5V
DEC8640 PIN 1 PIN 8

COMPONENT PLACEMENT

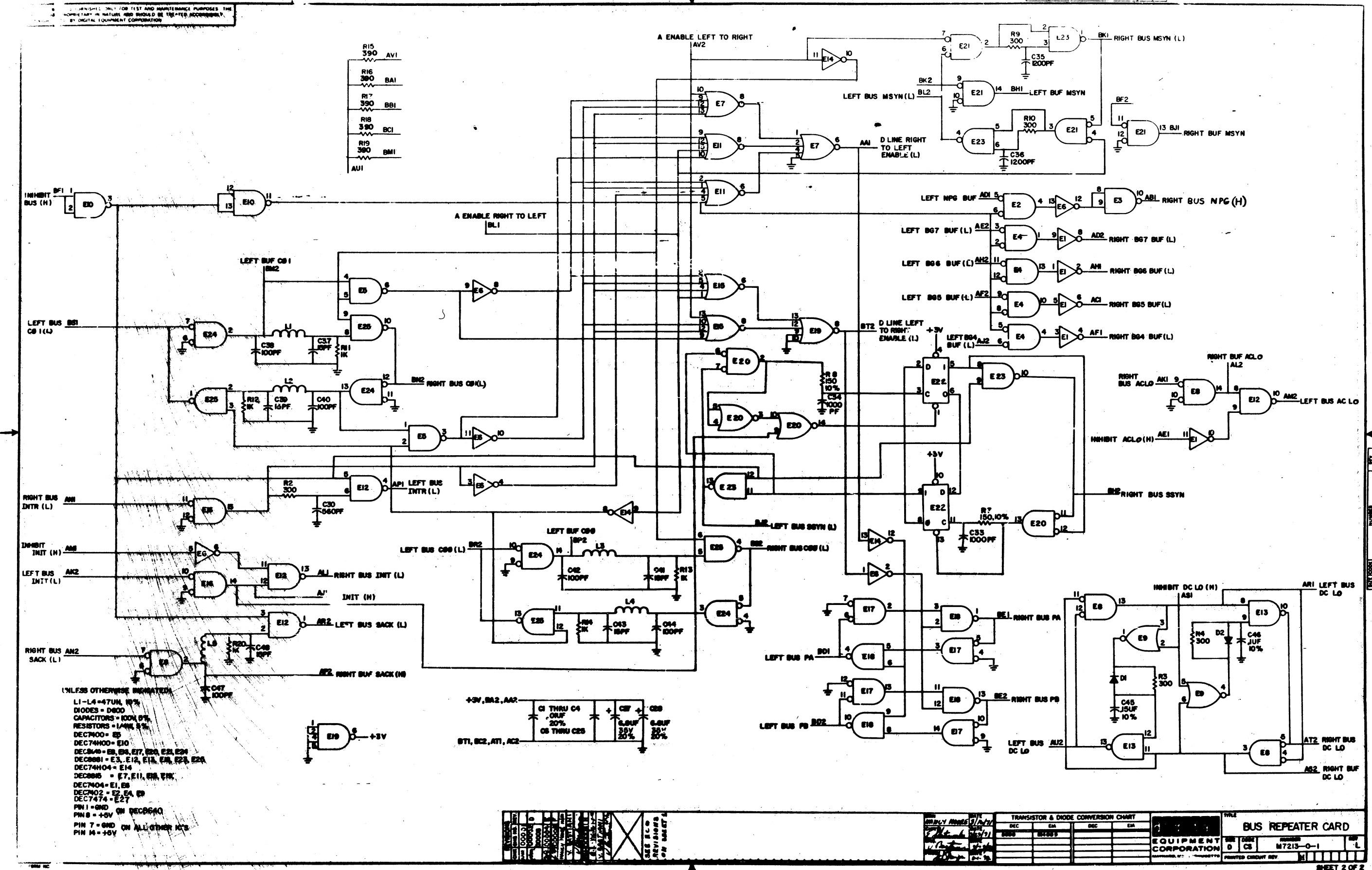


QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
1	EQUIPMENT CORPORATION HATFIELD MASSACHUSETTS	digital	
TITLE: BUS REPEATER CARD			
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES DECIMAL FRACTIONS ANGLES 0 .000 ± 1/64 0.0785 FINAL SURFACE QUALITY REMOVE SWEDGES AND BREAK SWEDGES CORNERS</p>			
<p>MATERIAL</p>			
<p>DATE: <u>Ed Neale</u> 1-7-72 DATE: <u>Ed Neale</u> 1-29-72 DATE: <u>Ed Neale</u> 1-1-72 DATE: <u>Ed Neale</u> 1-1-72 DATE: <u>Ed Neale</u> 1-1-72 DATE: <u>Ed Neale</u> 1-1-72 LAST USED ON:</p>			
<p>REVISION: <u>1</u> NUMBER: <u>M7213-0-1</u> REV. <u>L</u></p>			
<p>SCALE: SHEET <u>1</u> OF <u>2</u> DATE: <u>1-1-72</u></p>			

V. BASTIAN	M 121; 00007 J autent.	K
V. BASTIANI	M 122; 00008 J autent.	K
V. BASTIANI	M 123; 00009 J autent.	K
V. BASTIANI	M 124; 00010 J autent.	L
ECLARK	1-6-75	1-6-75
ECLARK	1-22-75	1-22-75

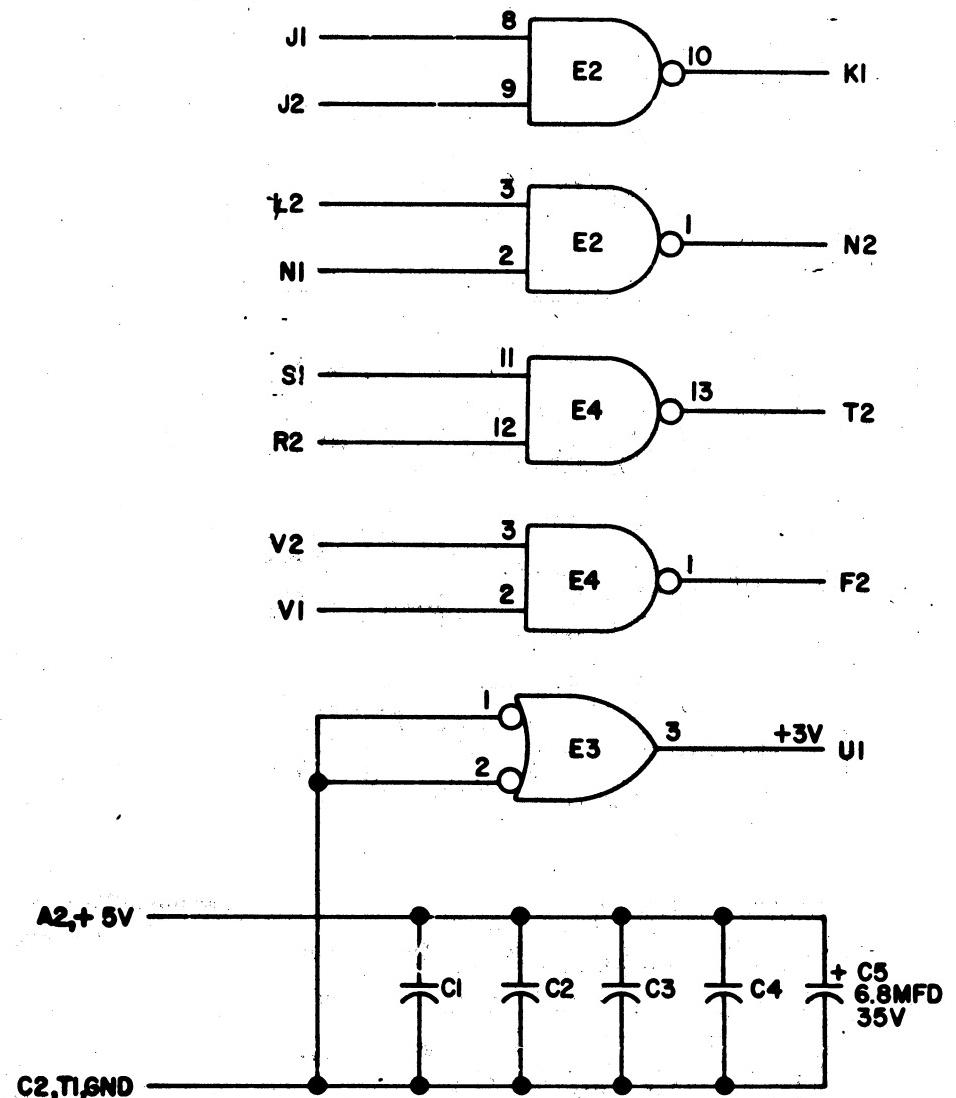
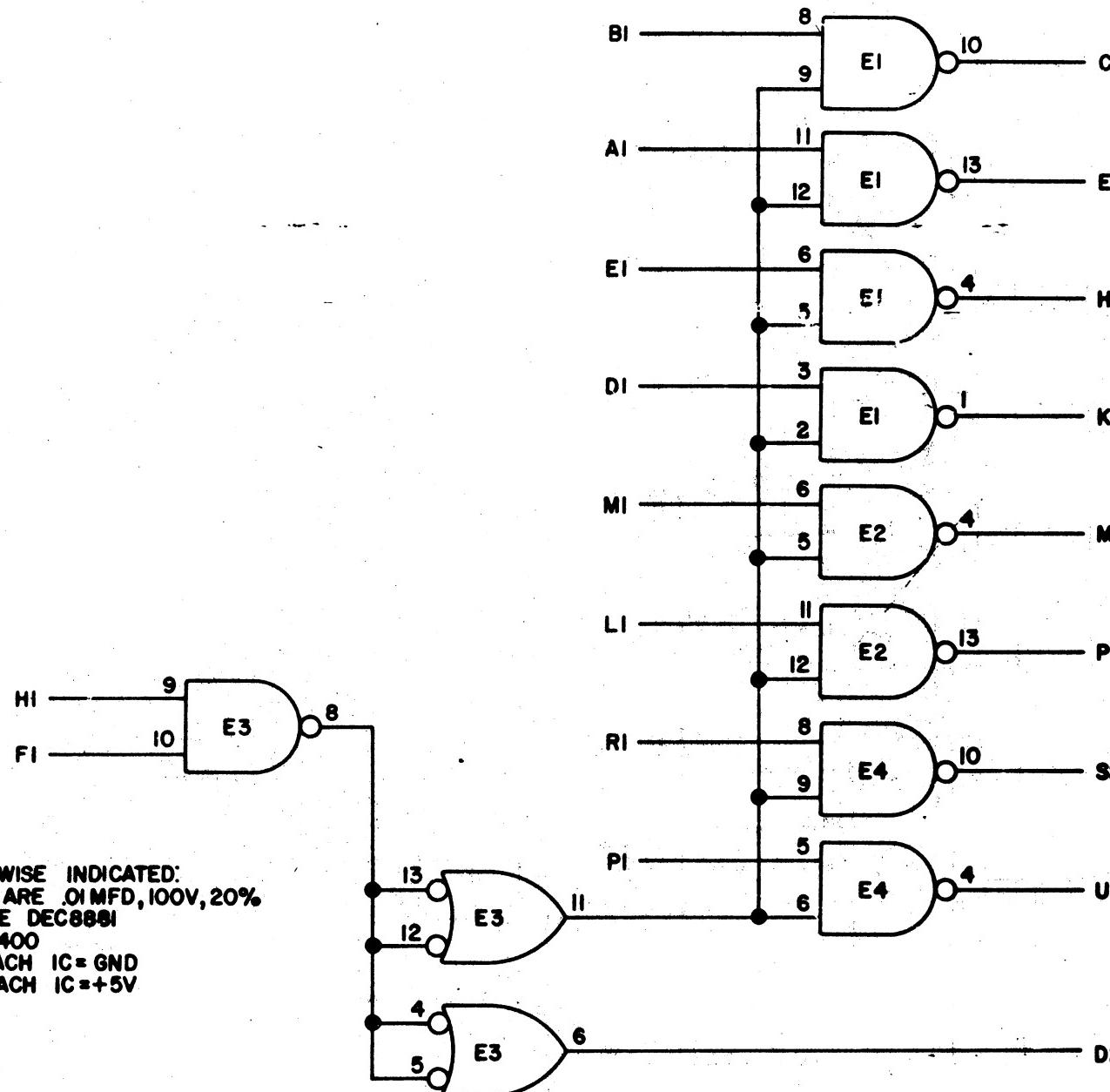
M7213-0-i

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11 PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY.
12 BY DIGITAL EQUIPMENT CORPORATION



TITLE			
BUS REPEATER CARD			
ITEM	SIZE	NUMBER	DATE
D	C8	M7213-0-1	1968
PRINTED CREDIT BY		M	

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REVISIONS		
CHG	CHG NO.	REV

DEC FORM NO.
DRB 11-2

DRN
D. Patey
DATE
11-21-69
CMK'D
M. L. L. L.
DATE
1-1-70
END
V.C. Johnson
DATE
5/25/70
PROD.
DATE

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital
EQUIPMENT
CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
UNIBUS DRIVERS M783
SIZE CODE B CS NUMBER M783-0-1
REV
PRINTED CIRCUIT REV. A B

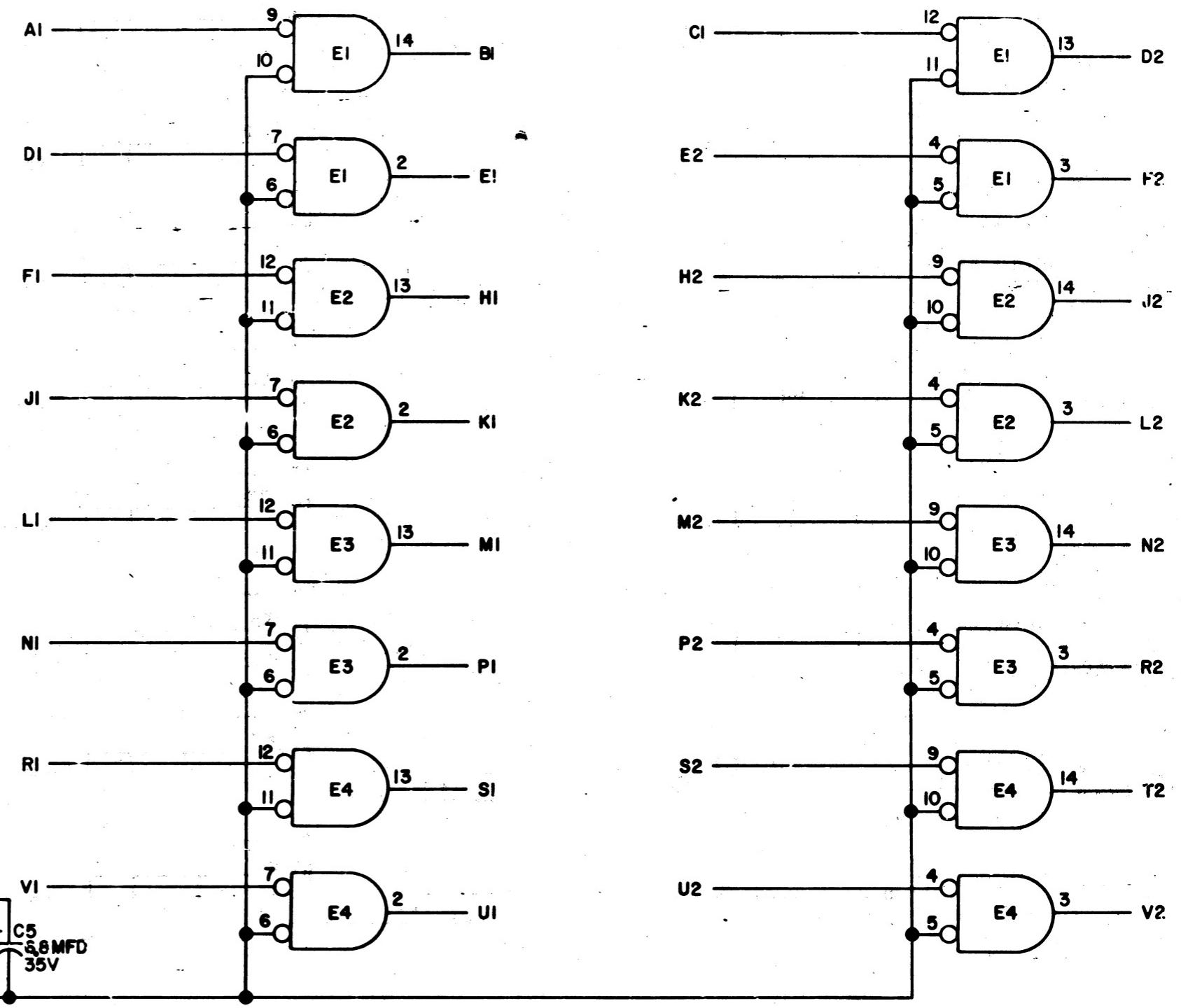
5 DIST. 324, 434, 1353

PINK

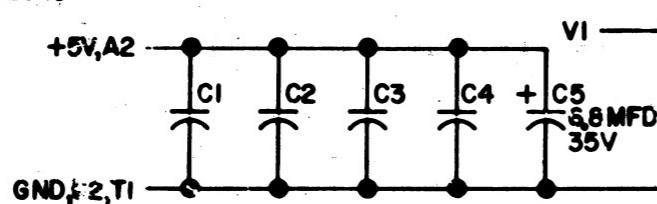
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NOTE

DEC 8640'S WERE PHASED IN AS 380 REPLACEMENTS ANY 380 FAILURES SHOULD BE REPLACED BY 8640'S.

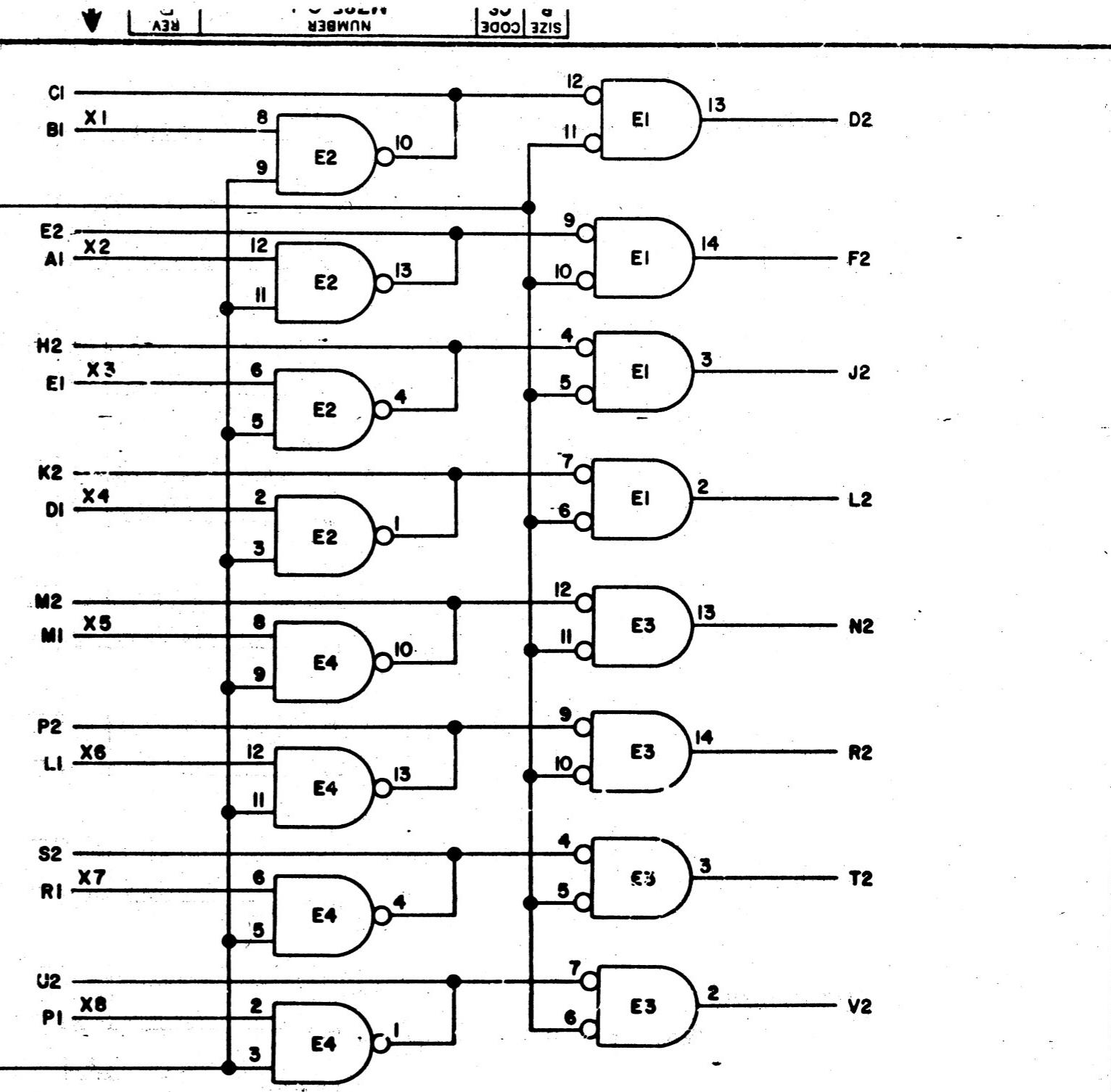
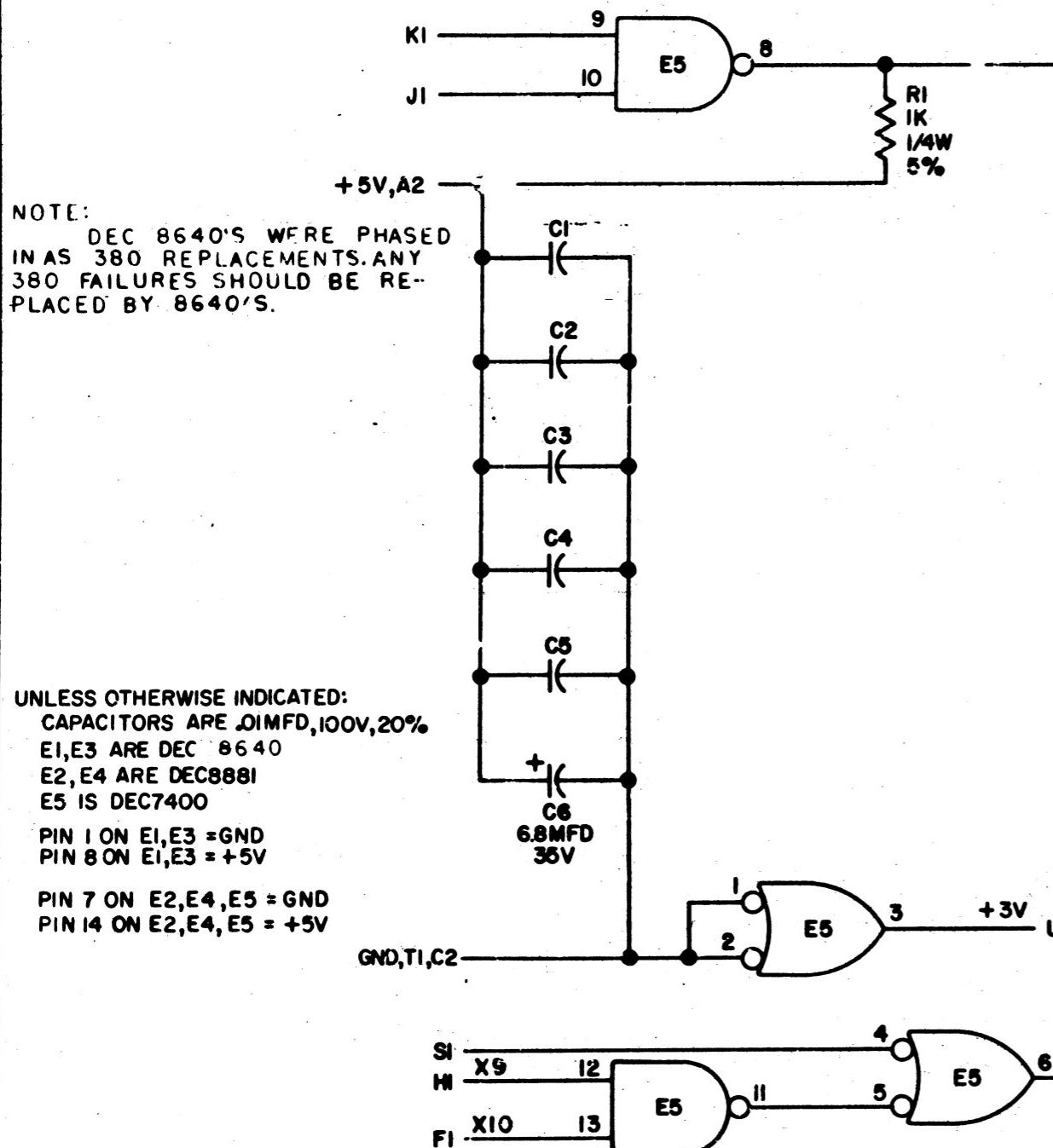


UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01MF, 100V, 20%
IC'S ARE DEC 8640
PIN 1 ON EACH IC=GND
PIN 8 ON EACH IC=+5V



REVISIONS		DRN.	DATE
CHK	CHG NO	REV	
✓	00001	A	11-18-69
✓	00002	B	DATE
✓	00003	C	DATE
✓	00004	D	DATE
✓	00005	E	DATE
✓	00006	F	DATE
✓	00007	G	DATE
✓	00008	H	DATE
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✓	00021	U	DATE
✓	00022	V	DATE
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✓	00024	X	DATE
✓	00025	Y	DATE
✓	00026	Z	DATE
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✓	00210	B	DATE
✓	00211	C	DATE
✓	00212	D	

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REVISIONS	CHG NO	REV	DATE
1	1	A	11-19-69
2	2	B	1-7-70
3	3	C	3/11/70
		D	

DRN.	DATE
C. Petey	11-19-69
CHK'D	DATE
T. Lethbridge	1-7-70
EMB	DATE
J. D. Johnson	3/11/70
PROD.	DATE

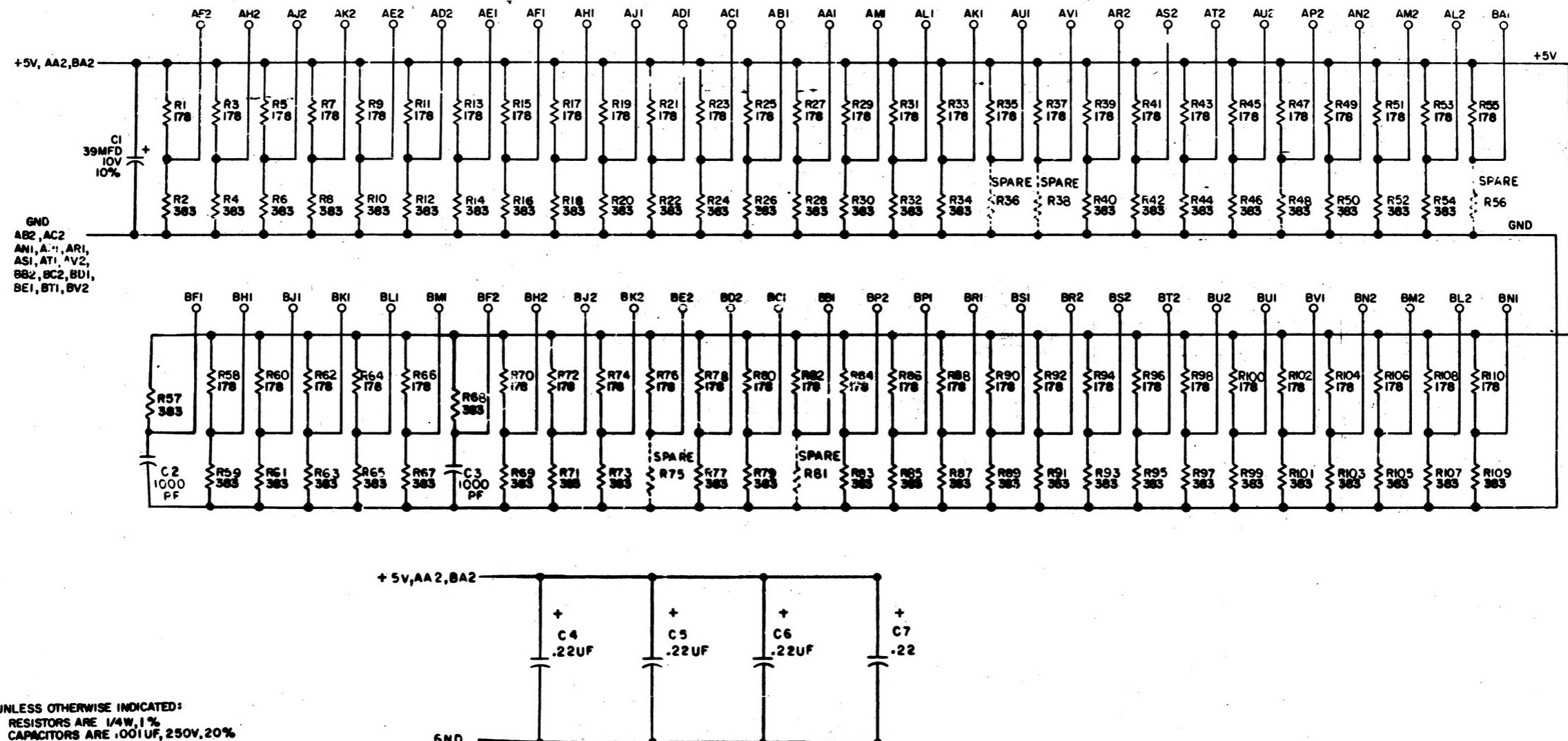
TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital
EQUIPMENT
CORPORATION
MAYNARD, MASSACHUSETTS

TITLE UNIBUS TRANCEIVERS
M785
SIZE CODE NUMBER
B CS M785-0-1
REV. B
PRINTED CIRCUIT REV. A B

DEC FOR I NO
DRB 102

5 Pink Dist. 324,434,435-3



REVISIONS	CHK	CIG-10 REV
0000001 A	CHK	CIG-10 REV
0000002 B	CHK	CIG-10 REV
000003 C	CHK	CIG-10 REV
b. 11/16/6-28-73	F. JAMISON	G-573
000004 D	CHK	CIG-10 REV
000005 E	CHK	CIG-10 REV
	P. JAMISON	

DRN. <u>BOT-68</u>	DATE <u>4-21-69</u>	TRANSISTOR & DIODE CONVERSION CHART				TITLE BUS TERMINATOR M930			
CHK'D. <u>J. Johnson - 6.</u>	DATE <u>12-3-69</u>	DEC	EM	DEC	EIA	SIZE S	CODE CS	NUMBER M930-0-1	REV. D
END. <u>J. Johnson</u>	DATE								
PROD.	DATE								

digital
EQUIPMENT
CORPORATION
MAYNARD, MASSACHUSETTS

PRINTED CIRCUIT REV. **D** [REVISION LOGO]

8

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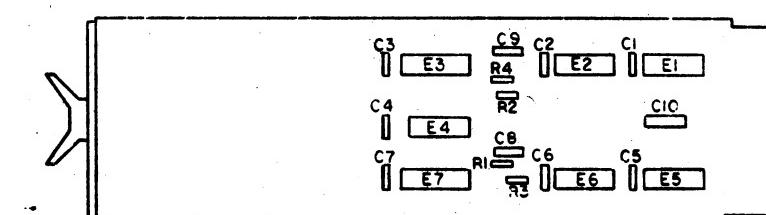
1

1. All parts shown are the best quality obtainable and shall be used unless otherwise specified or used in single or in part as required by the manufacturer or sale of items without permit.

PARTS REFERENCE

EM	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	E5	IC DEC 7404	1909686	1
2	E2 E6	IC DEC 314	1909704	2
3	E3	IC DEC 5601	1909705	1
4	E4	IC DEC 7405	1909930	1
5	E1 E7	IC DEC 74123	190436	2
6	C1 C2	CAP 6.8UF 35/20Z S TANT	1000057	1
7	C3 C4	CAP 0.01UF 100V 20Z DISC	1001610	7
8	R1 R2	CAP 27PF 100V 5% MICA	1001739	2
9	R2 R3	RES 5.6K 1/4W 5%	1301874	2
10	R4 R5	RES 5.6K 1/4W 5% MF	1304654	2
11		SPLIT LUGS	9006735	8

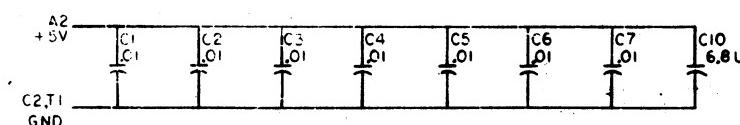
COMPONENT PLACEMENT



NOTES:

1. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE, PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
2. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

IC TYPE	GND	+5V
DEC 74123	PIN 8	PIN 16
DEC 314	PIN 1	PIN 8



ITEM# USED ON DRAWING/ASSEMBLY	QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNIBUS REPEATER ASSEMBLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES				
TO-220 CASES 0.060 ± 0.005 0.060 ± 0.005 FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL SEE PARTS LIST				
FINISH				
DATE 1/11/71				
BY J. Anderson				
REVIEWED BY J. Anderson 1/11/71				
APPROVED BY J. Anderson 1/11/71				
EQUIPMENT CORPORATION UNIBUS REPEATER BBSY				
DICS M7248-0-1				
SHEET 1 OF 2				